Joint Publication 3-36

Joint Air Mobility and Sealift Operations

04 January 2021

PREFACE

1. Scope

This publication provides fundamental principles and guidance to plan, execute, sustain, and assess strategic mobility in support of joint operations.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff (CJCS). It sets forth joint doctrine to govern the activities and performance of the Armed Forces of the United States in joint operations, and it provides considerations for military interaction with governmental and nongovernmental agencies, multinational forces, and other interorganizational partners. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders (JFCs), and prescribes joint doctrine for operations and training. It provides military guidance for use by the Armed Forces in preparing and executing their plans and orders. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of objectives.

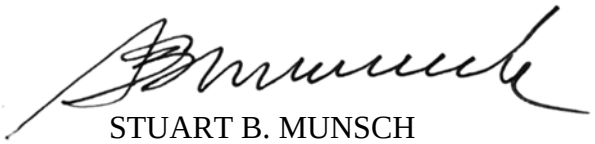
3. Application

a. Joint doctrine established in this publication applies to the Joint Staff, commanders of combatant commands, subordinate unified commands, joint task forces, subordinate components of these commands, the Services, the National Guard Bureau, and combat support agencies.

b. This doctrine constitutes official advice concerning the enclosed subject matter; however, the judgment of the commander is paramount in all situations.

c. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence unless the CJCS, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable and consistent with US law, regulations, and doctrine.

For the Chairman of the Joint Chiefs of Staff:



STUART B. MUNSCH
Vice Admiral, United States Navy
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EXECUTIVE SUMMARY
COMMANDER'S OVERVIEW

- **Provides principles and guidance to plan, execute, sustain, and assess strategic mobility in support of joint operations**
- **Discusses the strategic mobility triad**
- **Describes the organizations that carry out the Department of Defense's transportation missions and outlines their responsibilities**
- **Discusses command and control of air mobility forces and strategic sealift**
- **Describes air mobility operations core functions**
- **Describes the sealift trident support operations**
- **Outlines universal mobility planning factors and discusses air mobility-specific planning considerations**

Overview

The two primary modes of moving resources over long distances are common-user airlift and sealift. Global movement and pre-positioning of materiel, equipment, and personnel enables decisive force projection with timely movement, positioning, and sustainment capabilities worldwide in support of national strategy.

The Strategic Mobility Triad

The strategic mobility triad consists of strategic airlift; strategic sealift; and pre-positioned force, equipment, or supplies (PREPO) (afloat and ashore). While common-user airlift and common-user sealift can provide timely movement of large volumes of equipment, materiel, and personnel over great distances, having quick access to some of that equipment and materiel closer to a theater of operations in the early stages of a contingency can significantly reduce demands on the Defense Transportation System (DTS). PREPO is designed to reduce closure times of combat and support forces. Integrating all three elements of the strategic mobility

triad provides joint force commanders (JFCs) the means to quickly respond to contingencies.

Strategic Mobility Employment Missions

Developed during the joint planning process, employment concepts provide the foundation and determine the scope of mobilization, deployment, sustainment, and redeployment processes. Strategic mobility supports employment of the joint force through effective coordination and synchronization of intertheater (between theaters) and intratheater (within a theater) movement to meet the needs of the operating force.

Deployment and Redeployment

Deployment encompasses all activities from origin to destination, specifically including the continental United States (CONUS), intertheater movement, and intratheater movement, staging, and holding areas. The focus of these operations is to globally position forces in time to conduct military operations and to respond to other contingencies.

Redeployment is the transfer of deployed forces and accompanying materiel from one operational area (OA) to support another JFC's operational requirements within a new OA or home/demobilization station as a result of end-of-mission or rotation.

Movement and Maneuver

Rapid global mobility uniquely contributes to movement and maneuver.

Airlift and airdrop capabilities enable shifting, regrouping, or movement of joint forces in a theater to gain operational reach and positional advantage. Sealift can efficiently move large amounts of cargo over vast distances.

Sustainment

Routine sustainment strategic mobility missions involve movement of materiel and personnel to reinforce or resupply forces already deployed or employed in operations.

Combat sustainment operations move supplies, materiel, and personnel to reinforce or resupply units already engaged in combat.

Organizations and Responsibilities

The national security strategy depends heavily on the ability to rapidly transport resources worldwide. To assist the Department of Defense's (DOD's) ability to carry out its transportation missions, Commander, United States Transportation Command (CDRUSTRANSCOM), provides common-user air, land, and sea transportation; terminal management; and air refueling to support global deployment, employment, sustainment, and redeployment of US forces. Other combatant commanders (CCDRs) with assigned and attached/allocated air mobility forces use these same command and control (C2) systems and other shared United States Transportation Command (USTRANSCOM)/Air Mobility Command (AMC) systems and functions to transport intratheater requirements within the DTS.

Forces and Authority

The *Unified Command Plan* (UCP) designates CDRUSTRANSCOM as the DOD single manager for transportation, other than Service-unique or theater-assigned transportation assets. CDRUSTRANSCOM exercises combatant command (command authority) (COCOM) over the Service transportation component commands, AMC, Military Surface Deployment and Distribution Command, Military Sealift Command, and Joint Enabling Capabilities Command to carry out these UCP-assigned transportation responsibilities.

Service-Unique or Theater-Assigned Transportation

Service-unique or theater-assigned transportation includes airlift and sealift. Service components also use their air mobility forces to meet location, time-sensitive, and mission-critical needs supporting partnership building and security cooperation or other non-DTS responsibilities in their OA. JFCs prioritize their mission requirements via the air apportionment decision. Joint force air component commanders (JFACCs) use this guidance to prioritize joint air support for JFCs in their air operations directive.

Organizations and Responsibilities

- **Secretary of Defense (SecDef).** SecDef is responsible for transportation planning and operations within DOD.

- **Chairman of the Joint Chiefs of Staff (CJCS).** As the global integrator, the CJCS reviews and

evaluates movement requirements and resources, apportions capability, and allocates capability when required.

- **CJCS Joint Transportation Board (JTB).** The CJCS convenes the CJCS JTB during wartime or contingencies when required to ensure presidential and SecDef requirements for all common-user transportation resources assigned or available to DOD are apportioned and scheduled to optimize accomplishment of DOD objectives.

- **Military Departments** organize, train, equip, and provide the logistic support (including Service-organic transportation) of their respective forces. In this role, the United States Army, United States Navy, United States Air Force (USAF), United States Marine Corps, United States Space Force (USSF), Defense Logistics Agency, other DOD agencies, and the United States Coast Guard are all generically referred to as shippers.

- **CDRUSTRANSCOM.** CDRUSTRANSCOM:
  - Provides transportation and common-user port management and terminal services for DOD, as well as non-DOD agencies upon request.
  - Exercises COCOM of all assigned forces (including designated Reserve Component forces if mobilized or ordered to active duty for other than training).
  - Exercises responsibility for global air, land, and sealift transportation planning.

Command and Control

Effective support of a CCDR's mobility requirements requires theater and CONUS-based forces form a mutual partnership. This partnership should operate as an integrated force with interoperable planning, tasking, scheduling, and C2 systems. A critical element of this partnership linking centralized control agencies, such as the CONUS-based forces' USTRANSCOM Deployment Distribution Operations Center, to the

theaters' joint deployment and distribution operations centers.

Air Mobility

CCDRs with assigned air mobility forces have COCOM over those forces and normally delegate operational control over those forces to Service component commanders. When the commander, Air Force forces (COMAFFOR), is designated by the JFC as the JFACC, the air operations center (AOC) expands with joint augmentation to form a joint air operations center (JAOC). The COMAFFOR executes the C2 of USAF air operations in the theater or designated OA through the JAOC. Interaction between mobility air forces (MAF) C2 agencies is critical during all intertheater and intratheater operations and can only be supported by specific C2 arrangements and MAF apportionment, both prior to and after a joint task force has been established.

Sealift

C2 of strategic sealift is exercised in a variety of ways and is largely dependent upon the sealift ships and the role of strategic mobility it supports (PREPO, surge, sustainment, or redeployment). This C2 generally applies to government-owned or government-leased vessels but not to commercial shipping (both US- and foreign-flag liner service) because protocols are in place to facilitate the safe passage of commercial vessels in uncertain or hostile areas.

Air Mobility Operations

Air mobility operations are enabled by the combination of integrated personnel, equipment, infrastructure, and C2 capabilities into what is known as the global mobility enterprise. MAF are those forces assigned to CDRUSTRANSCOM and the CCDRs that conduct air mobility operations and provide the capability of rapid global mobility. Intertheater air mobility serves CONUS-to-outside the continental United States and/or assigned area of responsibility (AOR)-to-AOR air mobility requirements of common-users (i.e., Services and other DOD or non-DOD agencies). Air mobility assets assigned to USTRANSCOM typically execute the majority of intertheater air mobility missions through AMC and the 618th Air Operations Center (Tanker Airlift Control Center). Intratheater air mobility missions are typically conducted by air mobility forces assigned or allocated to the CCDRs. Intratheater air

mobility assets are normally scheduled and controlled through the JAOC/AOC if established. USTRANSCOM forces can support intratheater requirements when theater forces are not available. JFCs should address command relationships of USTRANSCOM forces supporting intratheater missions.

Although the USAF provides the preponderance of intertheater and intratheater air mobility support (through the air component of USTRANSCOM and/or the other combatant commands), each Service, with the exception of the USSF, possesses some Service-unique air mobility capability, some of which can support DTS requirements.

Sealift Missions and Operations

Strategic sealift ships include government-owned and militarily useful merchant-type ships made available to DOD to execute the sealift requirements of the DTS during military operations. Also referred to as "common-user sealift," these ships are used in the transportation of DOD cargoes from one seaport to another or to a location at sea in the OA pending a decision to move the embarked cargo ashore. The sealift force is composed of ships from some or all of the following sources:

- Active government-owned or government-controlled ships.
- Government-owned reserve or inactive ships.
- US privately owned and US flag-operated commercial ships.
- US privately owned, foreign-flag commercial ships.
- Foreign-owned and -operated commercial ships.

Large-deployment sealift operations are conducted in three roles comprising the sealift trident of afloat pre-positioning, surge, and sustainment. All three portions of the sealift trident are distinct entities, and removing any segment of the trident limits the JFC's full range of sealift support options. Organic and nonorganic are the two primary categories of sealift available to support these three roles. Organic vessels are owned by the United States Government (USG) or are under long-

term charter (lease) to a government entity. Nonorganic ships include all commercial vessels not owned or leased by the USG or provided to the USG through an Allied agreement. This includes vessels that are US-flagged and foreign-owned and -flagged.

Planning

The joint planning process determines the mobility requirements, which drive mobility planning. The joint planning process is used by the joint planning and execution community to plan and execute mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations. Successful movements start with well-defined requirements from the users and may involve significant upfront coordination with lift providers. In short, mobility planning is based on the requirements and the lift planning process is a joint effort between the user and provider that requires lead time and diligence.

Universal Mobility Planning Factors

Intelligence. A joint intelligence preparation of the operational environment (JIPOE) effort should be initiated early to identify and assess possible enemy course of action (COA) that could threaten friendly air mobility operations.

Vulnerabilities. Strategic mobility forces are vulnerable during all phases of operations, at origin, en route to ports of embarkation/ports of debarkation, and forward airfields and seaports.

Force Visibility. Force visibility enhances situational awareness and is required to support force sourcing, allocation, assignment of forces; force position; sustainment forecasting and delivery; and forecasting for future force requirements.

Diplomatic Clearances. Diplomatic clearances are crucial planning considerations that include movement of cargo over international boundaries, aircraft overflight and landing rights, communications connection approval, personnel visas, and other entry requirements. No time-phased force and deployment data, deployment order flow, or sustainment channel

mission can occur without appropriate clearances obtained in advance.

Sustainment. A key consideration during sustainment planning is the modal balance among airlift, sealift, and surface movements. USTRANSCOM supports routine sustainment operations through scheduled airlift operations such as channel service and scheduled sealift via commercial liner service.

Environmental Considerations. Mobility support operations should be planned and conducted with appropriate consideration of their effect on the environment in accordance with applicable US and host-nation agreements, environmental laws, policies, and regulations.

Multinational Planning Considerations. The joint planner should consider complementary multinational capabilities during COA development. However, this capability should be balanced against the potential for competition for US transportation assets to deliver those multinational units into the theater.

Information Activity Planning. Information is integral to the successful planning and execution of air mobility and sealift operations. Integrating information into planning requires early and detailed JIPOE and must be an integral part of, not an addition to, the overall planning effort.

Air Mobility-Specific Planning Considerations

Effective and well-coordinated allocation of air mobility assets requires careful prioritization, which provides planners with essential information that enables flexibility when faced with changing mission requirements. However, airlift may be the only choice to ensure the success of high-priority missions when land infrastructure is not well developed, time is critical, or distances are long. Planners and operators should weigh the immediate needs of the user against the overall requirements and priorities of the JFC.

- In general, air mobility forces should not be tasked for movements when sealift and land forces meet requirements.
- Planners should prepare cargo and validate requirements for movement by regularly

scheduled airlift channels to reduce pressure on organic airlift.

- Planners and operators should plan for commercial airlift to the maximum extent possible and consider commercially compatible airfields when validating requirements, to enable increased movement flexibility.
- Planners should also separate passenger and cargo requirements and plan to move outsized cargo, incompatible hazardous materials, and other items that are not compatible with commercial airlift via other means.
- Minimize movement congestion and vulnerability by reducing the time units and materiel spent en masse at forward terminals and synchronize the positioning of units and material with airlift capability.
- Maximize the productivity and survivability of airlift aircraft by minimizing aircraft ground times at forward locations.
- Minimize sortie requirements by repackaging all materiel for air shipment; ensuring combat personnel travel with their maximum authorized individual loads of rations, ammunition, or other personal protective equipment; and splitting units into air-essential and surface movement echelons (whenever possible).
- Ensure personnel are adequately fed, rested, and protected at en route stops.
- Deploy personnel and communications equipment necessary to track and report on all air movements.

Conclusion

This publication provides fundamental principles and guidance to plan, execute, sustain, and assess strategic mobility in support of joint operations.

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CHAPTER I
OVERVIEW

"Strategic sealift is the maritime bridge to ensure that heavy ground forces are delivered and that all land-based forces are supported and resupplied in a conflict."

John Dalton
Secretary of the Navy, 1994

1. Introduction

The two primary modes of moving resources over long distances are common-user airlift and sealift. Global movement and pre-positioning of materiel, equipment, and personnel enables decisive force projection with timely movement, positioning, and sustainment capabilities worldwide in support of national strategy. Successful response to contingency operations, and large-scale combat operations and campaigns, depends on sufficient strategic and tactical mobility assets to deploy and sustain forces in an operational area (OA) as long as necessary to meet US military objectives This joint publication (JP) identifies and describes military air mobility and military sealift; organization for command and control (C2) of those forces; and doctrine for air mobility and sealift planning, employment, and transition across the competition continuum.

2. The Strategic Mobility Triad

a. The strategic mobility triad (Figure I-1) consists of strategic airlift; strategic sealift; and pre-positioned force, equipment, or supplies (PREPO) (afloat and ashore). While common-user airlift and common-user sealift can provide timely movement of large volumes of equipment, materiel, and personnel over great distances, having quick access to some of that equipment and materiel closer to a theater of operations in the early stages of a contingency can significantly reduce demands on the Defense Transportation System (DTS). PREPO is designed to reduce closure times of combat and support forces. Integrating all three elements of the strategic mobility triad provides joint force commanders (JFCs) the means to quickly respond to contingencies. Each element of the triad has unique advantages and disadvantages, as shown in Figure I-2. In general, common-user air transports light, high-priority forces and supplies, including personnel and equipment required to rapidly integrate with pre-positioned equipment or supplies, especially during the initial stages of a contingency. As an operation progresses, common-user sealift delivers the heavy units and their support equipment, as well as the vital sustainment for deployed forces.

For more information on the strategic mobility triad, see JP 3-35, Deployment and Redeployment Operations.

b. Air mobility is the rapid movement of resources to and from, or within, a theater by air. It enables commanders to simultaneously execute the joint functions of movement and maneuver, as well as sustainment at the strategic, operational, and tactical levels of

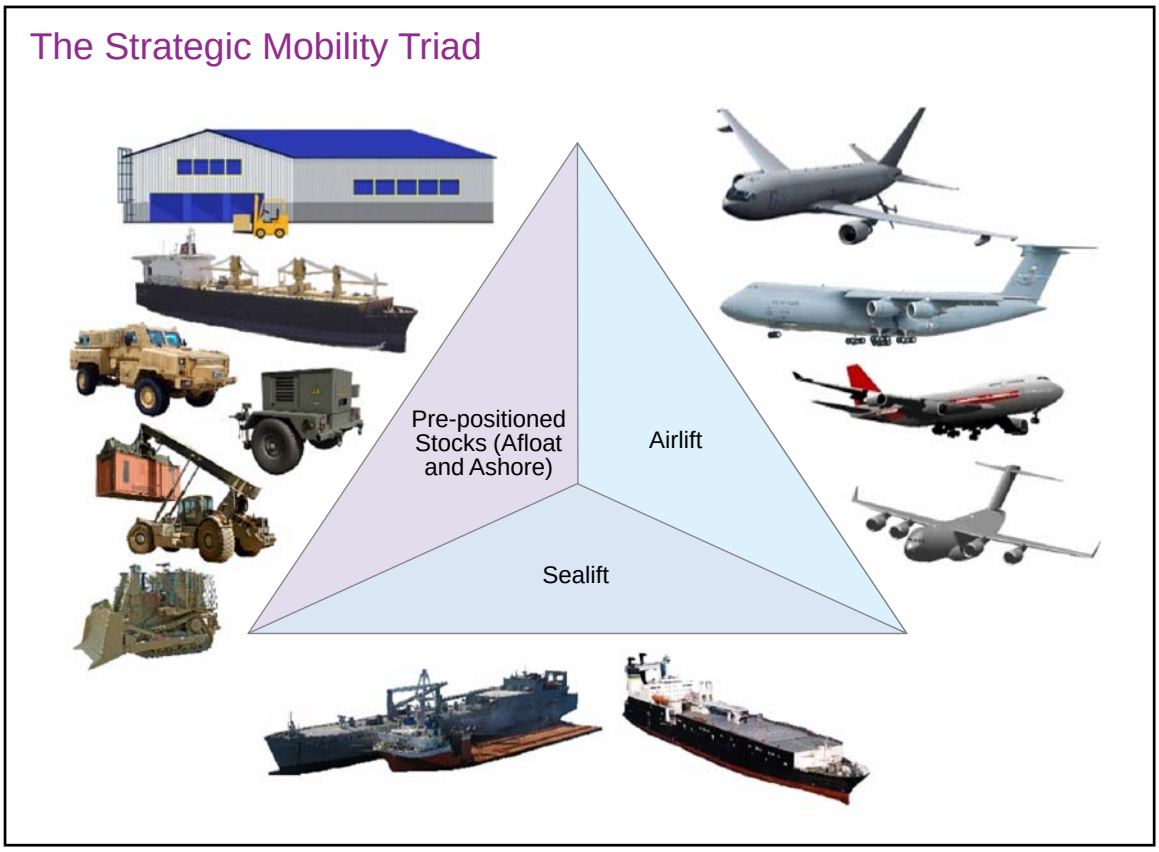

Figure I-1. The Strategic Mobility Triad

warfare, by delivering relatively small amounts of materiel and personnel in a short time. This is accomplished using military assets and contracted commercial carriers/Civil Reserve Air Fleet (CRAF). Military assets include both airlift and air refueling (AR) and come from the Air Mobility Command (AMC) and other combatant commands (CCMDs), if assigned/attached or allocated. Use of contracted commercial carriers/CRAF reduces the military footprint to build up capacity quickly, as well as the burden on military common-user airlift and facilities. The air mobility network combines airlift, AR, aeromedical evacuation (AE), and air mobility support assets, processes, and procedures to project and sustain forces. Air mobility operations provide a critical enabler for implementation of the US national military strategy and offer commanders a high degree of speed, range, and flexibility to project and sustain power regionally and across the globe.

c. Strategic sealift accounts for the majority of the total cargo, including fuel, delivered to an OA in most cases. To meet these requirements, strategic sealift capabilities are employed in three roles: PREPO (afloat), deployment (or surge), and sustainment. Common-user sealift accounts for the majority of the cargo moved during redeployment. The relationships of the roles in terms of time and quantities of material delivered are shown in Figure I-3.

d. The speed and effectiveness of moving forces from home station to the port of debarkation and sustainment stocks to the location logistics is required (i.e., point of need), as well as the reception and onward movement in theater, sets conditions for success or

failure of the strategic mobility triad to deliver timely combat power and sustainment to combatant commanders (CCDRs).

Advantages and Disadvantages of Elements of the Strategic Mobility Triad

Advantages	Disadvantages
Airlift	
• Rapid deployment of combat and supporting units • Flexibility of employment • Direct delivery capability to the warfighter, i.e., "factory to foxhole" without transload requirements	• Limited delivery capacity • Air route dependent • May require overflight rights • Dependent on availability and suitability of airfields • Requires cooperation of foreign governments • Relies heavily on civilian/commercial aircraft which may be unavailable or unwilling based on the threat • Most expensive per pound
Common-User Sealift	
• Sustained delivery of heavy combat and supporting units and their sustainment • Flexibility of employment • Only viable means to support the joint force with vast quantities of materiel	• Seaport dependent (may be mitigated via logistics over-the-shore operations) • Slow speed • Dependent upon open sea lines of communication • Requires favorable operating environment, especially for in-stream offload • Relies heavily on civilian/commercial ships which may be unavailable or unwilling based on the threat • Often unable to carry passengers
Pre-Positioning (Ashore)	
• Rapid deployment of heavy combat and supporting units • Reduces movements required for deployment and redeployment • Reduces deployment timeline	• Lacks flexibility • Airlift and/or sealift dependent • Fixed sites may be easily targeted for attack • Requires cooperation of foreign governments • Finite capacity
Pre-Positioning (Afloat)	
• Rapid deployment of heavy combat and supporting units • Reduces movements required for deployment and redeployment • Flexibility of employment • Reduces deployment timeline	• Generally dependent upon suitability of port facilities and debarkation locations • Dependent upon open sea lines of communications • Anchorages subject to attack • Requires favorable operating environment • Finite capacity

Figure I-2. Advantages and Disadvantages of Elements of the Strategic Mobility Triad

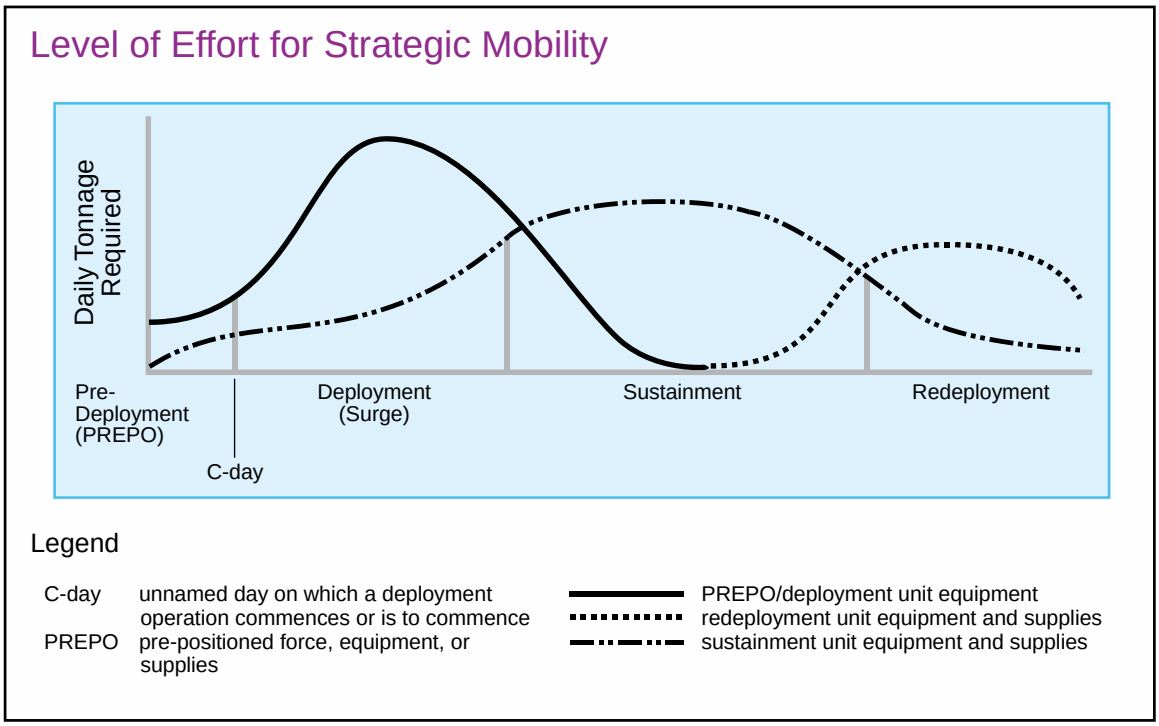

Figure I-3. Level of Effort for Strategic Mobility

3. Strategic Mobility Employment Missions

a. Employment is the application of force or forces to support achievement of specified national strategic objectives. Developed during the joint planning process, employment concepts provide the foundation and determine the scope of mobilization, deployment, sustainment, and redeployment processes. Strategic mobility supports employment of the joint force through effective coordination and synchronization of intertheater (between theaters) and intratheater (within a theater) movement to meet the needs of the operating force. Both air mobility and strategic sealift forces conduct the deployment and distribution of unit and sustainment cargo, including ammunition, fuel, personnel by air, and AR. The primary differences between the two capabilities lie in the speed of movement, the volume of materiel and personnel that can move via those capabilities, and points of delivery.

b. Mobility forces can transport combat configured units to maximize their availability for immediate combat operations in theater, or even en route, against threats seeking to disrupt force and sustainment flow. Given the increasing likelihood of attacks en route and the assumption of immediate combat, user requirements should dictate mode choices, scheduling, defense capabilities, and load planning. However, the threat or peculiarities of large-scale combat operations increasingly dictate adjustments to the user's plans or operations to accommodate the allowable load limitations, tactical procedures, and defensive support requirements of the air mobility and sealift force. Threats may dictate modifications to the optimum plan to protect these limited resources. Strategic mobility forces can surge during the initial stages of a conflict or when required. Commanders should consider the impact that surge will have on sustainment.

4. Deployment and Redeployment

a. Deployment encompasses all activities from origin to destination, specifically including the continental United States (CONUS), intertheater movement, and intratheater movement, staging, and holding areas. The focus of these operations is to globally position forces in time to conduct military operations and to respond to other contingencies. Operations in a hostile or uncertain environment could reduce cargo and passenger throughput and limit or reduce airlift and sealift capacity or AR offload amounts due to tactics, escort availability or absence, and objective area support requirements.

b. Redeployment is the transfer of deployed forces and accompanying materiel from one OA to support another JFC's operational requirements within a new OA or home/demobilization station as a result of end-of-mission or rotation. Commanders and planners should fully leverage the backhaul capacity of the mobility forces returning to their point of origin. Using this capacity to redeploy or reposition units, personnel, patients, materiel, and repairable items can reduce the number of additional missions from being scheduled or diverted.

Deployment and redeployment are covered in detail in JP 3-35, Deployment and Redeployment Operations.

5. Movement and Maneuver

Rapid global mobility uniquely contributes to movement and maneuver. Air mobility forces enhance other forces' combat power and flexibility, either by extending their range or providing them with greater maneuverability. Airlift enhances deployment of critical early entry force packages over strategic distances without delays caused by terrain or obstacles. AR extends the range and expedites the arrival of self-deploying aircraft, precluding the need for intermediate staging bases. Airlift and airdrop capabilities enable shifting, regrouping, or movement of joint forces in a theater to gain operational reach and positional advantage. Sealift can efficiently move large amounts of cargo over vast distances. It is the only practical method to deliver armored vehicles in quantity. In remote areas, without established airfields, sealift may be the only practical mode of transport.

6. Sustainment

a. Routine sustainment strategic mobility missions involve movement of materiel and personnel to reinforce or resupply forces already deployed or employed in operations. Routine sustainment missions also include missions conducted in support of military and nonmilitary organizations involved in humanitarian relief operations. These operations normally deliver loads with the most effective and efficient use of mobility resources. Routine sustainment planning usually assumes user requirements and the general security situation provide some flexibility in the actual delivery times of specific loads. Schedules and load plans are made to maximize throughput from available allowable load of airlift and sealift assets and support resources. However, time-definite delivery (TDD) and interoperable load configurations may drive schedules and load plans. When practical, routine sustainment should be planned to utilize backhaul capacity. In some cases,

retrograde movements of repairable items must be planned and executed with the same TDD discipline as sustainment movements to ensure timely return of items to repair facilities.

b. Combat sustainment operations move supplies, materiel, and personnel to reinforce or resupply units already engaged in combat. Combat sustainment planning usually assumes requirements and threat situations limit flexibility of delivery times, locations, and load configurations of specific loads.

CHAPTER II
ORGANIZATIONS AND RESPONSIBILITIES

"When the chips are down, a lot of our civilians will surprise us with their heroism, their intrepidity, and their risking of their own lives for our country. The CRAF [Civil Reserve Air Fleet] and VISA [Voluntary Intermodal Sealift Agreement] may be contractually based, but in the end we're going to find a lot of them going in when the going gets rough. They know it is their brothers and sisters who are over there in the trenches."

General Walter Kross
Commander, United States Transportation Command, 1996-1998

1. General

a. Effective and efficient employment of mobility forces requires a clear understanding of the associated command relationships and control processes affecting the application of these forces. Because they may operate simultaneously across three areas—intertheater, intratheater, and within an OA—C2 of mobility forces can be a particularly complex task. The national security strategy depends heavily on the ability to rapidly transport resources worldwide. To assist the Department of Defense's (DOD's) ability to carry out its transportation missions, Commander, United States Transportation Command (CDRUSTRANSCOM), provides common-user air, land, and sea transportation; terminal management; and AR to support global deployment, employment, sustainment, and redeployment of US forces. Other CCDRs with assigned and attached/allocated air mobility forces use these same C2 systems and other shared United States Transportation Command (USTRANSCOM)/AMC systems and functions to transport intratheater requirements within the DTS. Effective communication systems between AMC's 618th Air Operations Center (Tanker Airlift Control Center) (618 AOC [TACC]) and the other CCDRs' air operations centers (AOCs) ensure the most efficient and effective use of limited, common-user airlift and AR forces in support of DTS requirements.

b. USTRANSCOM provides the global capability for rapid and decisive military force power projection and to coordinate, sustain, and improve DOD distribution processes. This includes coordinating the capability to transport units, equipment, and initial sustainment from the point of origin to the point of need and provides joint deployment and distribution enterprise (JDDE) resources (i.e., equipment, procedures, doctrine, leaders, technical connectivity, information, shared knowledge, organizations, facilities, training, and materiel necessary to conduct joint deployment and distribution operations) to augment or support a JFC's operational movement requirements.

2. Forces and Authority

a. The *Unified Command Plan* (UCP) designates CDRUSTRANSCOM as the DOD single manager for transportation, other than Service-unique or theater-assigned transportation assets. CDRUSTRANSCOM exercises combatant command (command authority) (COCOM) over the Service transportation component commands, AMC,

Military Surface Deployment and Distribution Command (SDDC), Military Sealift Command (MSC), and Joint Enabling Capabilities Command to carry out these UCP-assigned transportation responsibilities.

b. CDRUSTRANSCOM has the following responsibilities and authorities:

(1) As the mobility joint force provider, responsible for identifying and recommending global joint sourcing solutions to the Chairman of the Joint Chiefs of Staff (CJCS), in coordination with the Services and other CCMDs, from all mobility forces and capabilities and supervising the implementation of sourcing decisions.

(2) As the DOD single manager for transportation (other than Service-organic, Service-controlled, or theater-assigned assets), responsible for providing common-user and commercial air, land, and sea transportation; terminal management; and AR to support the global deployment, employment, sustainment, and redeployment of US forces. CDRUSTRANSCOM plans, allocates, routes, schedules, and tracks assets to meet validated JFC deployment and distribution requirements.

(3) As the DOD single manager for patient movement (PM), provides DOD global PM, through the DTS, in coordination with the CCDRs.

(4) As the Joint Deployment and Distribution Coordinator, exercises coordinating authority for JDDE operations and planning and will collaborate with other CCMDs, the Services, and, as directed, United States Government (USG) departments and agencies.

(5) Specific to sealift, delegated authority to procure commercial transportation services and, with the approval of the Secretary of Defense (SecDef), to activate the Voluntary Intermodal Sealift Agreement (VISA).

(6) Additionally, controls and manages the transportation accounts of the Transportation Working Capital Fund (TWCF), which is a revolving fund that finances common transportation operations within DOD conducted by its three Service component commands: AMC, MSC, and SDDC.

3. Service-Unique or Theater-Assigned Transportation

Service-unique or theater-assigned transportation includes airlift and sealift that are shown in Figure II-1. Service components also use their air mobility forces to meet location, time-sensitive, and mission-critical needs supporting partnership building and security cooperation or other non-DTS responsibilities in their OA. JFCs prioritize their mission requirements via the air apportionment decision. Joint force air component commanders (JFACCs) use this guidance to prioritize joint air support for JFCs in their air operations directive.

Refer to the UCP for CCDR responsibilities, and JP 3-30, Joint Air Operations, *for guidance on JFC air apportionment and air operations directive requirements.*

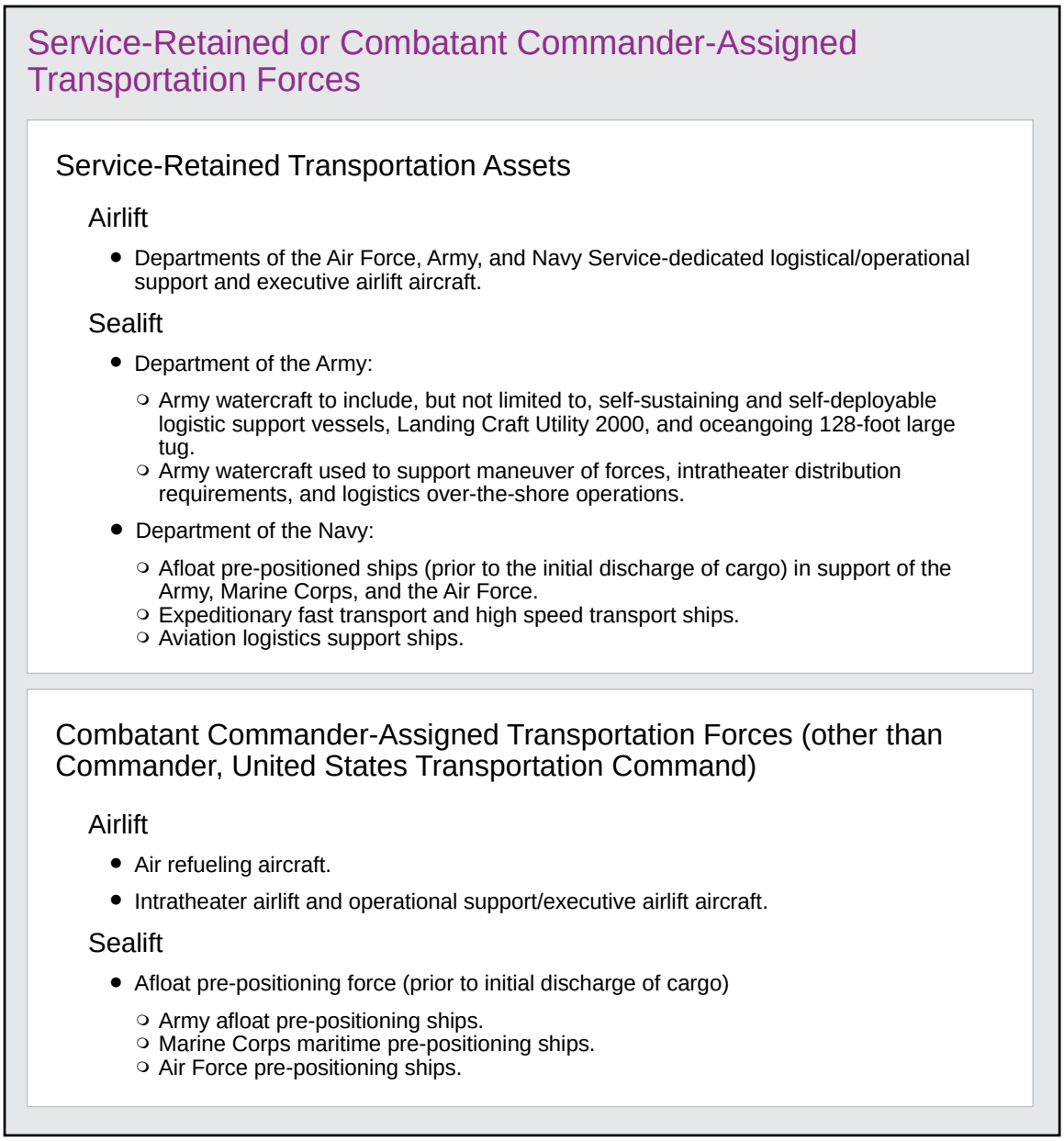

Figure II-1. Service-Retained or Combatant Commander-Assigned Transportation Forces

4. Organizations and Responsibilities

Traffic management and transportation single manager responsibilities must be aligned to achieve optimum responsiveness, effectiveness, and economy.

a. **SecDef.** SecDef is responsible for transportation planning and operations within DOD. Transportation-specific responsibilities include establishing and overseeing implementation of overall policy for effective and efficient use of DOD and commercial transportation resources and establishing overall policy guidance governing the transportation account of the TWCF.

b. **CJCS.** As the global integrator, the CJCS reviews and evaluates movement requirements and resources, apportions capability, and allocates capability when required. The CJCS:

(1) Establishes procedures, in coordination with the Deputy Assistant Secretary of Defense for Logistics, the Secretaries of the Military Departments, and the Defense Logistics Agency (DLA), for the submission of movement requirements by DOD user components to USTRANSCOM and for the submission of evaluated requirements and capabilities by USTRANSCOM and its component commands.

(2) Prescribes a movement priority system in agreement with uniform materiel movement and issue priority system to meet the requirements of the supported CCDRs.

(3) Monitors the capabilities of USTRANSCOM common-user transportation resources to provide air mobility, sealift, CONUS land transportation, common-user ocean terminal service, and aerial port service, based upon the requirements of DOD components.

(4) Assigns movement priorities in support of DOD components based upon capabilities reported by USTRANSCOM.

(5) Apportions forces for planning consistent with the *Global Force Management Implementation Guidance.*

(6) Adjudicates competing lift requirements as requested by USTRANSCOM or the CJCS Joint Transportation Board (JTB).

(7) Acts on the recommendations of the CJCS JTB to establish priorities and allocations for the use of air mobility, sealift, and surface transportation capability.

c. **JTB.** The CJCS convenes the CJCS JTB during wartime or contingencies when required to ensure presidential and SecDef requirements for all common-user transportation resources assigned or available to DOD are apportioned and scheduled to optimize accomplishment of DOD objectives. When convened, the CJCS JTB acts on behalf of the CJCS to communicate presidential and SecDef priorities and adjudicate competing requirements for intertheater mobility lift assets and/or resolve other issues that negatively impact the DTS and which USTRANSCOM and the supported CCDRs are unable to resolve. USTRANSCOM allocates transportation forces to supported CCDRs' validated requirements in accordance with (IAW) the CJCS guidance and priority assigned to each operation and/or requirement. USTRANSCOM advises the Joint Staff J-3 [Operations] and Joint Staff J-4 [Logistics] when movement requirements exceed capabilities. CDRUSTRANSCOM presents courses of action (COAs) to the CJCS if a balance to transportation requirements and capabilities cannot be maintained or to resolve lift shortfalls. CCDRs can establish a theater-joint transportation board to resolve similar theater-level issues.

For further information concerning the organization, responsibilities, management, and procedures of a JTB, see JP 3-35, Deployment and Redeployment Operations, *and JP 4-01*, The Defense Transportation System.

d. **Military Departments** organize, train, equip, and provide the logistic support (including Service-organic transportation) of their respective forces. In this role, the United States Army (USA), United States Navy (USN), United States Air Force (USAF), United States Marine Corps (USMC), United States Space Force (USSF), DLA, other DOD agencies, and the United States Coast Guard (USCG) are all generically referred to as shippers. Each Service establishes transportation policy for the movement of equipment and supplies funded by the applicable shipper service and for administrative support and performance of transportation operations assigned by CCDRs at either their local installations or throughout the theater. Each Service maintains trained personnel who can participate in joint planning and provide Joint Operation Planning and Execution System (JOPES) inputs. Specifically, with respect to air mobility and sealift, the Secretaries of the Military Departments are responsible as follows:

(1) **The Secretary of the Army** establishes, organizes, trains, and equips SDDC as a jointly staffed major subordinate command of the USA for operational assignment to CDRUSTRANSCOM and establishes and controls installation and port activities as necessary for the operation and administration of SDDC. Other tasks include:

(a) Organize, train, and equip forces for theater opening, port opening, and terminal operations missions.

(b) Assign Service-unique missions, to include logistics over-the-shore (LOTS), movement and maneuver of forces, intratheater distribution, port denial mitigation, and C2 to Army organizations.

(c) Support CCDR requirements through theater assignment of organizations and equipment.

(2) **The Secretary of the Navy** (SECNAV) establishes, organizes, trains, and equips MSC as a major command (MAJCOM) of the USN for assignment to CDRUSTRANSCOM. SECNAV obtains CDRUSTRANSCOM approval of organizational changes within MSC that may affect the ability of CDRUSTRANSCOM to carry out assigned responsibilities and coordinates with CDRUSTRANSCOM on the assignment of new missions to MSC to ensure MSC is able to meet its assigned USTRANSCOM functions without degradation. Additional tasks include:

(a) Coordinate Navy requirements with CDRUSTRANSCOM for support from the Maritime Administration Ready Reserve Force (MARAD RRF).

(b) Designate Commander, Military Sealift Command (COMSC), as Head of Contracting Activity for the Navy to support CDRUSTRANSCOM.

(c) Provide litigation and legal support for actions arising from contracts issued by MSC in support of CDRUSTRANSCOM.

(d) Assign Service-unique missions or assets to MSC.

(3) **The Secretary of the Air Force** establishes, organizes, trains, and equips AMC as a MAJCOM of the USAF for assignment to CDRUSTRANSCOM and establishes and controls installation and airbase activities as necessary for the operation and administration of AMC. Other tasks include:

(a) Organize, train, and equip forces for theater opening, airbase opening, and terminal operations missions.

(b) Carry out Air Force function of the Department of the Air Force so as to fulfill to the maximum extent practicable the current and future operational requirements of USTRANSCOM.

(c) Assign Service-unique missions or assets to AMC.

e. **CDRUSTRANSCOM.** Specific CDRUSTRANSCOM responsibilities with respect to airlift and sealift are shown in Figures II-2 and II-3, respectively. As the focal point for transportation for DOD, CDRUSTRANSCOM:

(1) Provides transportation and common-user port management and terminal services for DOD, as well as non-DOD agencies upon request.

(2) Exercises COCOM of all assigned forces (including designated Reserve Component forces if mobilized or ordered to active duty for other than training).

(3) Exercises responsibility for global air, land, and sealift transportation planning to:

(a) Provide CCDRs with transportation planning expertise essential during planning. This includes review of Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3110.01, *(U) 2018 Joint Strategic Campaign Plan (JSCP)* [short title: JSCP] tasks; analysis of supported CCDR's time-phased force and deployment data (TPFDD) requirements in JOPES for transportation feasibility; and advise the supported CCDR of changes required to produce a force and sustainable deployment concept. Upon approval of the supported CCDR's operation plan (OPLAN), support the plan review and analysis as required.

(b) Provide deployment estimates and availability of total lift assets to the President, SecDef, and supported CCDRs for development of alternative COAs and optimal flow of forces. CDRUSTRANSCOM also advises the supported CCDRs and the CJCS concerning use of, or changes to, lift capabilities.

(c) Synchronize planning for global distribution operations in coordination with other CCMDs, the Services, and, as directed, appropriate USG departments and agencies.

(4) Oversee the responsibilities listed below:

(a) During deployment, assist the supported CCDR's validated movement requirements and scheduling for maximum support. During sustainment and

Airlift-Specific Responsibilities of the Commander, United States Transportation Command

- Exercise combatant command authority of all assigned air mobility assets to include organization and employing forces to carry out missions in support of other unified commands.
- Apply assigned strategic air mobility resources as directed by the Secretary of Defense (SecDef).
- Direct Air Mobility Command (AMC) to perform air mobility missions in support of United States Transportation Command (USTRANSCOM) air mobility requirements.
- Establish and maintain relationships between Department of Defense (DOD) and the commercial transportation industry to develop concepts, requirements, and procedures for the Civil Reserve Air Fleet (CRAF). Activate, with the concurrence of SecDef, any CRAF stage or segment to fulfill commercial air augmentation of the DOD airlift fleet.
- Ensure transportation policy, procedures, and data requirements are fully integrated with overall DOD operations and logistics interfaces.
- Make recommendations to SecDef with regard to air mobility assets needed to execute DOD common-user transportation and strategic mobility objectives.
- Performs single port manager functions necessary to support the strategic flow of deploying forces' equipment and sustainment from the aerial port of embarkation and hand-off at the supported combatant commander's aerial port of debarkation.
- Establish and maintain relationships between DOD and commercial transportation industry to promote the seamless transition from peace to war.
- Monitor and evaluate AMC's readiness programs for active and reserve component units that support USTRANSCOM missions.
- Serve the DOD single manager for global patient movement and patient movement items, providing patient movement through the Defense Transportation System in coordination with the combatant commands.

Figure II-2. Airlift-Specific Responsibilities of the Commander, United States Transportation Command

redeployment, CDRUSTRANSCOM should consider efficient use of intertheater lift resources. CDRUSTRANSCOM recommends reallocation of intertheater forces to the CJCS to optimize use and support plan execution during deployment, employment, reconstitution, redeployment, and sustainment. CDRUSTRANSCOM identifies conflicting transportation requirements and recommends COAs to the CJCS JTB for resolution or adjudication if a balance of capabilities cannot be maintained.

(b) Develop and maintain integrated in-transit visibility (ITV) capability for DOD using the Integrated Data Environment/Global Transportation Network Convergence (IGC) system, which is the designated ITV system for DOD. IGC also provides C2 functionality for CDRUSTRANSCOM and is integrated into the Global Command and Control System-Joint (GCCS-J).

Sealift-Specific Responsibilities of the Commander, United States Transportation Command

- Exercise combatant command (command authority) of sealift forces, to include organizing and employing forces to carry out missions in support of other unified commands.
- Coordinate and implement Transportation Working Capital Fund operational procedures in association with comptrollers of Military Departments and Office of the Secretary of Defense; provide guidance for standardization of rates, regulations, operational policies, and procedures.
- Apply assigned and allocated strategic sealift resources.
- Procure commercial transportation services (including lease of transportation assets) in accordance with applicable laws as necessary to conduct the US Transportation Command mission.
- With the approval of Secretary of Defense (SecDef), activate the Voluntary Intermodal Sealift Agreement and voluntary tanker agreement.
- Coordinate and provide oversight for the joint logistics over-the-shore program.
- Coordinate with the Maritime Administration and provide guidance on requirements issues as necessary.
- In coordination with other agencies, provide direction and oversight for all matters dealing with the transportation of hazardous material.
- Assign transportation assets as requested by the Secretaries of the Military Departments and the commanders of unified commands at the direction of SecDef or Commander, United States Transportation Command (CDRUSTRANSCOM), and the Service Chief or commander concerned so agree.
- Make recommendations to the Service Chiefs via the Chairman of the Joint Chiefs of Staff concerning the capability, characteristics, design, and other requirements for mobility assets needed for CDRUSTRANSCOM's mission.
- Designate continental United States (CONUS) seaports of embarkation and debarkation for deploying/redeploying forces and sustainment during planning and execution; make recommendations to the combatant commanders for designation of seaports outside CONUS that might be used in military operations.

Figure II-3. Sealift-Specific Responsibilities of the Commander, United States Transportation Command

(c) Provide program management support for the DOD-approved emergency management programs, CRAF, VISA, and voluntary tanker agreement (VTA).

(d) Coordinate and implement TWCF operational procedures in association with comptrollers of Military Departments and Office of the Secretary of Defense; provide guidance for standardization of rates, regulations, operational policies, and procedures.

f. **AMC** is USTRANSCOM's Air Force Service component primarily responsible for providing the four core functions of airlift, AR, AE, and air mobility support. In its Service

component role, AMC organizes, trains, equips, and employs its assigned forces to meet global air mobility requirements. The Commander, Air Mobility Command (AMC/CC), in the Service component role, is the commander, Air Force forces (COMAFFOR), with delegated operational control (OPCON) of AMC forces and functions. AMC/CC exercises C2 through its functional AOC, the 618 AOC (TACC) to:

(1) Manage the safety oversight, subscription, and scheduling of CRAF carriers that provide a pool of civil airlift for the DOD in times of crises.

(2) Monitor the performance of USTRANSCOM-contracted commercial carriers via the 618 AOC (TACC). Individual commercial carriers retain control of crews, aircraft, and support.

(3) Serve as the lead command for Air Force air mobility issues and work closely with the air component commands from each CCMD with assigned mobility air forces (MAF) to establish appropriate standards to enable a smooth transition to contingency operations.

(4) Develop weapon system standards and integrate C2 processes for the MAF.

(5) Ensure processes, procedures, and weapon systems are standardized across the MAF.

(6) Provide USAF forces for joint task force-port opening (JTF-PO) aerial port of debarkation (APOD).

g. **SDDC** is the Army Service component of USTRANSCOM and a major subordinate command of the United States Army Materiel Command. SDDC provides global deployment and distribution capabilities to meet the nation's objectives. SDDC provides worldwide, common-user ocean terminal services and traffic management services to deploy, employ, sustain, and redeploy US forces on a global basis. SDDC also conducts transportation engineering to facilitate deployability and feasibility of present and future deployment assets. Additionally, SDDC, acting on behalf of CDRUSTRANSCOM, is the single port manager for all common-user seaports of embarkation (SPOEs) and seaports of debarkation (SPODs). When designated, SDDC serves as the port operator (e.g., using stevedoring services contracts of host-nation support [HNS]). In addition to these responsibilities, SDDC serves as DOD's proponent for container management and USTRANSCOM's Army force provider for JTF-PO (APOD) and JTF-PO (SPOD). SDDC has sealift-related responsibilities, subject to the direction and control of USTRANSCOM, to:

(1) Provide planning support to CDRUSTRANSCOM to facilitate effective use of common-user ocean terminals and transportation assets.

(2) Negotiate ocean, CONUS inland, and multimodal rates. Book cargo space on commercial vessels. Provide routing and rates for domestic trucking and inland waterway and coastal carriers. Contract for stevedoring and related terminal services.

(3) Recommend diversions of cargo within DTS.

(4) Provide those functions necessary to control the flow of cargo and information between SPOE, SPOD, and hand-off to the CCDR.

(5) Provide, through the SDDC Transportation Engineering Agency, deployment engineering, research, and analytical expertise to improve the joint force's deployability, to include evaluating cargo throughput capability of common-user ocean terminals to be used for unit deployment.

(6) Support the USTRANSCOM Global Operations Center to synergize surface requirement planning and execution.

(7) Provide trained and ready forces to execute JTF-PO APOD and JTF-PO SPOD.

(8) Facilitate transportation feasibility analyses for commercial and organic vessels using the Integrated Computerized Deployment System (ICODES).

(9) Provide movement planning, cargo documentation, unit call forward, single port management, vessel stow planning, ITV, and consolidation/aggregation of cargo to facilitate efficient ship usage and port operations. Various computer systems, along with their associated databases and peripheral equipment, are used to plan and execute airlift and sealift operations; see Appendix B, "Automated Planning and Execution Tools."

(10) Provide container and rail car management; oversight of carrier performance for ocean, multimodal, and domestic inland carriers; and billing and payment for traffic management and distribution services.

For more information on SDDC support to JTF-PO, see JP 4-01.5, Joint Terminal Operations, *and JP 4-09,* Distribution Operations.

h. **MSC** is the Navy Service component of USTRANSCOM and a major subordinate USN command of US Fleet Forces Command. MSC provides common-user and exclusive-use sealift transportation services to deploy, employ, sustain, and redeploy US forces on a global basis. MSC has a global footprint and consists of a CONUS headquarters (HQ), area commands, field offices, operational commands, and liaison offices located in CONUS and outside the continental United States (OCONUS). Commander, MSC, operates and maintains MSC forces as both a Navy administrative commander for forces in support of Navy missions and operational commander for forces supporting USTRANSCOM missions. MSC-specific sealift tasks, subject to the direction and control of USTRANSCOM, are as follows:

(1) Provide planning support to USTRANSCOM for use and control of common-user sealift.

(2) Provide organic and leased ocean transportation and support services to DOD components as required by CDRUSTRANSCOM.

(3) Facilitate use and control of government- and commercial-owned ocean transportation services for DOD.

(4) Inform CDRUSTRANSCOM and SDDC of the availability of commercial and MSC-controlled lift capacity.

(5) Recommend activation of MARAD RRF ships and activation of VISA to CDRUSTRANSCOM when required.

(6) On behalf of CDRUSTRANSCOM, exercise OPCON of assigned and requisitioned sealift when activated by CDRUSTRANSCOM.

(7) Prepare forecasts of ocean and maritime common-user transportation services based on DOD component requirements.

(8) Schedule sealift support of DOD requirements for CDRUSTRANSCOM.

(9) Coordinate MSC operations with appropriate port authorities.

(10) Provide sealift for passengers on government-owned and/or government-controlled or commercial ships when required.

(11) In coordination with USTRANSCOM, develop program and budget submissions for strategic sealift system requirements.

(12) Perform missions and tasks as directed by CDRUSTRANSCOM. Keep CDRUSTRANSCOM informed of Service-assigned missions and employment of strategic sealift assets.

(13) Support the USTRANSCOM Global Operations Center to synergize surface requirement planning and execution.

(14) Provide trained and ready forces to JTF-PO.

(15) Provide commercial ocean carrier qualifications and performance management, documentation, customs and agriculture clearance, ITV, container and rail car management, and billing and payment in support of traffic management and distribution.

For more information on MSC support to JTF-PO SPOD, see JP 4-01.5, Joint Terminal Operations, *and JP 4-09,* Distribution Operations.

i. **Department of Transportation (DOT)** ensures the safety, efficiency, and modernization of the US transportation system to improve quality of life, productivity, and competitiveness of US workers and businesses. While composed of several administrations, the DOT's Federal Aviation Administration (FAA) and Maritime Administration (MARAD) play vital roles in the strategic mobility triad.

(1) The **FAA** coordinates and allocates civilian aircraft for wartime activation and provides wartime insurance for carriers enrolled in the CRAF program. The FAA assesses the availability of commercial insurance coverage when requested for peacetime civil air support for CRAF activation. Additionally, the FAA issues notices to airmen and special federal aviation regulations for US civil aviation containing airspace advisories and prohibitions affecting CRAF carriers' worldwide operations.

(2) **MARAD** ensures US Merchant Marine shipping is appropriate to meet national defense needs and supports the domestic and foreign commerce of the United States. The agency administers programs to meet sealift requirements determined by DOD and conducts related national security activities. Additional functions include maintenance of ships in MARAD custody, administration of subsidy programs and other financial aids to shipping, maritime research and development, and training of US merchant marine officers. Primarily, the agency functions as the national shipping authority of the United States, which is the emergency shipping operations organization tasked to acquire and manage merchant shipping for government service in time of war or in defense-related emergencies. Secondarily, the agency conducts national security planning, training, and operations in areas such as emergency communications, naval cooperation and guidance for shipping (NCAGS), war risk insurance, and port emergency operations. In peacetime, the agency provides ship inventory (through the Maritime Security Program [MSP], VISA, VTA, and requisitioning) and estimates of ship forecasts for use in DOD planning. DOD provides MARAD with information on defense sealift requirements. In a contingency, DOD advises MARAD of TPFDD requirements for ships by ship type.

j. **USCG.** The USCG is, at all times, a Service and a branch of the Armed Forces of the United States. However, it is unique among the Services in that, as a component of the Department of Homeland Security (DHS), it has statutory law enforcement authority to enforce, or assist in the enforcement of, all applicable maritime federal laws on, under, and over the high seas and waters subject to US jurisdiction. In addition, the USCG is specifically authorized to assist DOD in support of the national military strategy as outlined in memorandums of agreement between DOD and DHS. During joint force deployment and redeployment operations, the USCG provides protection at US SPOEs using maritime safety and security teams and SPODs overseas through port security units and harbor defense operations. USCG and USN expeditionary harbor defense capabilities can be used to provide an integrated layered defense for SPODs with the following capabilities: a maritime safety and security team, port security unit, and coastal riverine forces; explosive ordnance disposal team; visit, board, search, and seizure teams; patrol boats; and high-endurance cutters with their embarked helicopter. In the United States, the USCG ensures the safety and security of US ports and waterways (e.g., enforcing vessel cargo and waterfront facility regulations, inspecting vessels [including those of the MARAD RRF], licensing mariners, enforcing customs laws, establishing and servicing aids to navigation, regulating and administering bridges over navigable waterways, port emergency response, operation of vessel traffic services in selected ports, and establishing safety and security zones).

For more information on USCG support to sealift operations, see JP 3-35, Deployment and Redeployment Operations, *and JP 4-09,* Distribution Operations.

CHAPTER III
COMMAND AND CONTROL

"The future operating environment will continue to be characterized by national and international challenges that will stretch the employment capacity of the US military and demand a force in readiness with capabilities for a global response."

***Prepositioning Programs Handbook,* Appendix F to Marine Corps Installations & Logistics Roadmap (MCILR), 3rd Edition, 2015**

1. General

Effective support of a CCDR's mobility requirements requires theater and CONUS-based forces form a mutual partnership. This partnership should operate as an integrated force with interoperable planning, tasking, scheduling, and C2 systems. A critical element of this partnership linking centralized control agencies, such as the CONUS-based forces' USTRANSCOM Deployment Distribution Operations Center (DDOC), to the theaters' joint deployment and distribution operations centers (JDDOCs). These partnerships exercise centralized control to provide the JFC with responsive, capable, and flexible strategic mobility forces.

2. Air Mobility

a. CCDRs with assigned air mobility forces have COCOM over those forces and normally delegate OPCON over those forces to Service component commanders. When the COMAFFOR is designated by the JFC as the JFACC, the AOC expands with joint augmentation to form a joint air operations center (JAOC). The COMAFFOR executes the C2 of USAF air operations in the theater or designated OA through the JAOC. Interaction between MAF C2 agencies is critical during all intertheater and intratheater operations and can only be supported by specific C2 arrangements and MAF apportionment, both prior to and after a joint task force (JTF) has been established. Figure III-1 illustrates these day-to-day command relationships for controlling air mobility forces.

(1) **AOC** organizations include five divisions: strategy; combat plans; combat operations; intelligence, surveillance, and reconnaissance; and air mobility. CCMDs with an assigned area of responsibility (AOR) may have an associated geographic AOC (and in some cases regional AOCs) that supports assigned and attached forces conducting air mobility operations for its respective AOR within their boundaries, if applicable. The air mobility division (AMD) usually oversees intratheater air mobility operations.

Further details concerning the structure, functions, processes, and personnel within the AOC can be found in Air Force Tactics, Techniques, and Procedures (AFTTP) 3-3.AOC, Operational Employment-Air and Space Operations Center; *Air Force Doctrine Annex 3-30,* Command and Control; *and Air Force Instruction (AFI) 13-1AOC Volume 3,* Operational Procedures–Air Operations Center (AOC).

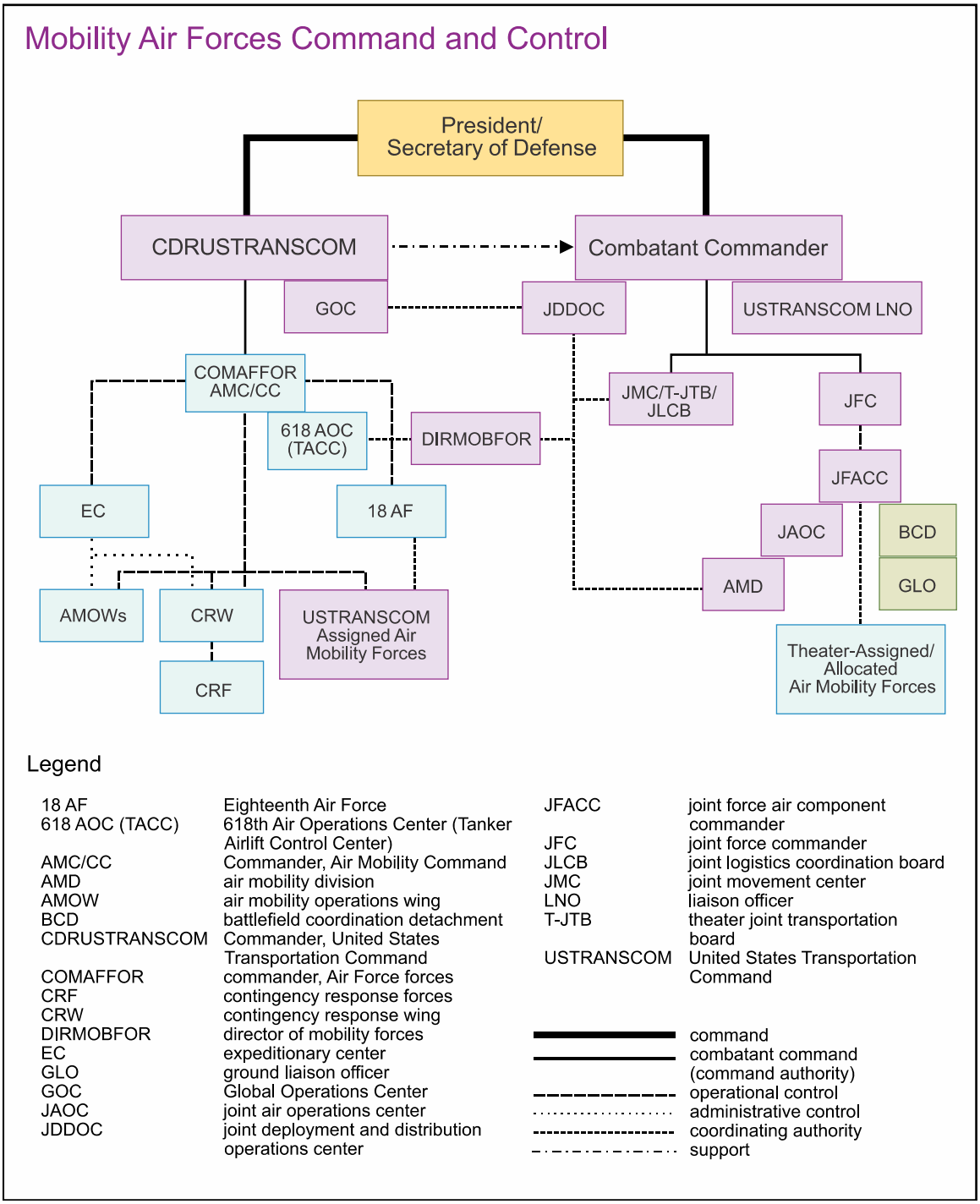

Figure III-1. Mobility Air Forces Command and Control

(2) **AMD.** The AMD comprises an airlift control team, AR control team, air mobility control team, air mobility support team (if required), and aeromedical evacuation control team (AECT). The AMD plans, coordinates, tasks, executes, and assesses intratheater air mobility operations. The AMD coordinates with the director of mobility forces (DIRMOBFOR) if appointed by the COMAFFOR but remains responsive to the AOC's director (typically the MAJCOM operations directorate) for the tempo and timing

of USTRANSCOM air mobility forces with operations. The AMD integrates and directs theater-assigned or -allocated air mobility forces operating in the AOR or joint operations area (JOA) in support of JFC objectives. This expansion of C2 systems requires the AMD to interface with the 618 AOC (TACC) other AMDs if required. The AMD works with the other AOC divisions on the air tasking order (ATO) development, as air mobility missions typically affect the ATO.

(3) **DIRMOBFOR.** The DIRMOBFOR coordinates the integration of intertheater air mobility support provided by USTRANSCOM and is the COMAFFOR's designated coordinating authority for intertheater air mobility operations with all commands and agencies, both internal and external to the JTF, including the JAOC, the 618 AOC (TACC), and the theater joint movement center (JMC) or JDDOC. COMAFFORs can source a DIRMOBFOR from their forces or request DIRMOBFOR support from AMC. DIRMOBFORs have distinct responsibilities in relation to JFC staffs. Since air mobility requirements originate at the component level and are validated by either the theater JMC or JDDOC (when established) or by the CCDR's operations directorate of a joint staff in coordination with the logistics directorate of a joint staff (J-4), the DIRMOBFOR's essential role is as the principal interface between the requestor and validator to obtain appropriate prioritization of intertheater air mobility tasks while balancing requirements and air mobility capability. The DIRMOBFOR ensures USTRANSCOM's intertheater movements meet the JFACC/AOC scheme of maneuver and coordinates and deconflicts intertheater movements with the intratheater movements executed by the AMD. The DIRMOBFOR also ensures intertheater movements are annotated in the ATO. The DIRMOBFOR also serves as member of the joint logistics coordination board, chaired by the CCDR's J-4, and assists in the integration and coordination of the multinational air mobility plan.

For more information on airlift prioritization, see Defense Transportation Regulations (DTR), Part 1, Passenger Movement; *JP 4-0,* Joint Logistics; *JP 4-09,* Distribution Operations; *and CJCSI 4120.02,* List of Priorities – DOD Transportation Movement Priority System.

b. **C2 Structures.** The value of air mobility forces lies in their ability to exploit and enhance the speed, range, flexibility, and versatility inherent in air operations. Centralized control and decentralized execution of air mobility missions are the keys to effective and efficient air mobility operations. Integrated command structures exercise centralized control over USTRANSCOM-assigned and theater-assigned or -attached air mobility forces. This arrangement ensures a smooth interaction of the intertheater and intratheater forces and, when integrated, the three C2 structures constitute the global air mobility C2 system: intertheater, intratheater, and JTF systems.

(1) **Intertheater Air Mobility Operations.** Intertheater air mobility serves the CONUS-to-theater and theater-to-theater air mobility needs of the CCDRs. USTRANSCOM reviews and validates those movement requirements (which include mode of transportation) and forwards the tasking to its appropriate Service component(s) for movement. Air mobility assets assigned to USTRANSCOM execute the majority of intertheater airlift missions. Control of these assets is normally exercised by AMC through

the 618 AOC (TACC), which is the primary worldwide planning and execution agency for activities involving USTRANSCOM-assigned mobility forces operating to fulfill CDRUSTRANSCOM-directed requirements. Specifically, it receives validated common-user requests; tasks the appropriate unit; plans the mission; and provides continuous communications connectivity between intertheater forces, the common-user, and supporting Global Air Mobility Support System (GAMSS) forces. However, CCDRs can execute intertheater operations using their assigned or allocated air mobility forces to meet the JFCs' time, place, and mission-sensitive needs and requirements. The bulk of intertheater air mobility operations are conducted in response to requests from the CCMDs and Services IAW guidelines set by the President and SecDef. For intertheater air mobility operations involving air mobility forces assigned to a CCDR, COCOM is retained by that CCDR to whom the forces are assigned, and the CCDR may delegate OPCON to the respective Service component commanders.

For more information on C2 of air mobility operations, see JP 3-30, Joint Air Operations.

(a) **Common-User Intertheater Airlift.** Intertheater airlift provides the critical air link between theaters. During deployment operations, intertheater airlift requirements, while significant, are, to a large degree, predictable. CCDRs request intertheater airlift to support deployment, sustainment, and redeployment operations through the joint planning process. Such requirements are normally identified in the TPFDD associated with a particular OPLAN or operation order (OPORD). CCDRs, in coordination with supporting commanders and Services, establish movement requirements and develop a TPFDD in JOPES. A TPFDD can be tailored to meet specific requirements when the mission is not aligned with an OPLAN or modified to meet the requirements associated with a particular COA.

For more information on the JOPES process, see Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3122.02, Joint Operation Planning and Execution System (JOPES) *Volume III Time-Phased Force and Deployment Data Development and Deployment Execution, and JP 3-35,* Deployment and Redeployment Operations.

(b) **Common-User Intertheater AR.** Intertheater AR supports the long-range movement of combat and combat support aircraft between theaters. Intertheater AR operations also support global strike missions and airlift assets in an air bridge. AR enables deploying aircraft to fly nonstop to their destination, reducing closure time. OPCON of intertheater AR will typically be delegated to AMC/CC with C2 provided by the 618 AOC (TACC). Whenever possible, intertheater missions should be planned either over, or in close proximity to, existing air bridge routes. This enables tankers positioned for air bridge support to also provide emergency AR support. When intertheater missions cannot be planned along air bridge routes and the mission is deemed important enough to provide emergency AR support, planners should use a combination of ground and airborne spare aircraft. Users requiring AR support submit their requests through the Air Refueling Management System for validation and support through the JAOC/AOC AMD or USTRANSCOM.

See JP 1, Volume 2, The Joint Force, *for further discussion on command relationships. See the current* Global Force Management Implementation Guidance and Global Force Management Allocation Plan *for additional information on force assignment, allocation, and apportionment.*

(2) **Intratheater Air Mobility Operations.** CCDRs direct intratheater air mobility operations to meet theater operational and contingency requirements. Air mobility forces assigned or allocated to the CCDR normally conduct operations within UCP-defined geographical boundaries, although the AOR boundaries do not restrict a CCDR from accomplishing their assigned missions. Intratheater common-user air mobility assets are normally scheduled and controlled by the JAOC/AOC if established. The ability to identify and coordinate movement requirements (visible in JDDE-common systems) is critical to providing theater reachback support from the 618 AOC (TACC). Intratheater airlift support can be provided by Service-unique forces that are assigned or allocated to the Service/theater or may be supported by common-user air mobility assets similar to the intertheater air mobility support process. When directed, the COMAFFOR, through the AMD, can execute C2 of airlift operations through the theater AOC. When intratheater air mobility requirements exceed the capability of assigned or allocated forces, other USTRANSCOM mobility forces can support intratheater airlift using a SecDef-approved support relationship. The supported commander may also request augmentation from SecDef through the request for forces process.

Refer to JP 1, Volume 2, The Joint Force, *for support relationships and AOR boundaries.*

(a) Common-user intratheater movements are normally controlled through a theater-specific C2 node and requirements are met using theater-assigned/attached forces. The AMD fulfills that role within the CCMD's JAOC. The AMD functions are similar to those of the 618 AOC (TACC) but with a theater focus that is critical in teaming with the JMC/JDDOC to coordinate and prioritize the phasing of intertheater and intratheater airlift requirements. The AMD assesses theater requirements, tasks forces to meet those requirements, initiates requests for additional forces through the request for forces process, or seeks additional USTRANSCOM support by other means. Intertheater missions are typically flown to major airfields (terminals) often referred to as "hubs." From these hubs, transported personnel and cargo are distributed by intratheater forces to other terminals, referred to as "spokes," within the JFC's OA.

(b) When requirements exceed the capability of assigned and attached forces, air mobility capabilities may be augmented. The supported CCDR may allocate additional theater-assigned and attached forces to the commander, JTF. SecDef may allocate USTRANSCOM forces to the supported CCDR or JFC; USTRANSCOM may support the CCDR by making air mobility capabilities available as a supporting CCDR. In addition to USTRANSCOM's worldwide strategic airlift programs (e.g., CRAF and multimodal), USTRANSCOM also manages additional global and regional airlift contracts containing intratheater/tactical support for cargo and passenger movements requiring chartered airlift. Regardless of the source, intratheater, common-user air mobility forces assigned, attached, or made available to a subordinate joint force should be organized under a COMAFFOR, as appropriate, and directed by the JAOC/AOC for optimum efficiency

and effectiveness. The COMAFFOR must ensure intratheater and intertheater air mobility forces are organized to meet theater/JOA requirements.

(c) Normally, Service-unique forces exist as elements of Service or functional component aviation arms and are assigned directly to their primary user organizations. These forces, if assigned to a CCMD, operate under the COCOM of that CCDR. While these forces are not under the control of the USAF component commander, their capabilities and resources should be identified and operations visible to the 618 AOC (TACC), the theater AMD, and the JMC or JDDOC which may be established at a subordinate unified or JTF level to support the concept of operations and COMAFFOR. In special circumstances, these forces may be utilized to augment intratheater forces and accomplish tasks on behalf of their Service or made available for DTS movements.

For more information on request for forces/capabilities, see CJCSM 3130.06, Global Force Management Allocation Policies and Procedures.

(3) **JTF Air Mobility Operations.** During joint operations, it may be necessary to establish a JTF within a CCDR's AOR, as applicable. This enables the CCDR to maintain a theater-wide focus and, at the same, time respond to a regional requirement within the theater. When this occurs, a JTF will be designated and forces made available for this operation. The COMAFFOR may be delegated OPCON of USAF assets and, if designated the JFACC, will typically exercise tactical control (TACON) of air mobility forces made available to the JFACC. If the JTF requires additional air mobility forces beyond those already made available for tasking, additional augmentation may be requested.

(a) **Establishing a JTF.** JTFs can be established by SecDef, a CCDR, subordinate unified commander, JFC, or an existing JTF commander. The establishing authority designates the commander, assigns the mission, designates forces, delegates command authorities, and will determine appropriate military objectives and set priorities for the JTF. The JTF commander establishes appropriate subordinate command relationships, including those with functional and Service components. The JTF commander will normally assign JFACC responsibilities to the component commander having the preponderance of air forces and the capability to effectively plan, task, and control joint air operations. If a CCDR requires additional air mobility capabilities, the request must be processed through the Joint Staff for SecDef approval.

(b) **Establishment of a JAOC.** The JFACC requires a C2 organization appropriately sized and tailored to support JTF or subordinate command-related air operations. The JAOC is the air planning and execution focal point for the JTF (or other subordinate command) which can be a joint, combined, or component AOC as specified by the commander, JTF. When a JTF is formed, command relationships for air mobility forces will be established by the JTF establishing authority normally exercised through the JFACC/COMAFFOR. The JAOC includes the AMD, which is responsible for the centralized planning, direction, and coordination of air mobility operations. The JAOC director is charged with the effectiveness of joint air operations and focuses on actions to

plan, coordinate, task, execute, and assess air operations in the OA based on JFACC guidance.

(4) **Airfield Operations during Contingencies.** During contingency operations, efficient and effective use of limited airfield capacity and resources is often critical to a successful military response. The task is complicated when airfields in the theater of operations are host to a variety of allied military, nongovernmental organizations, and commercial air activities. USTRANSCOM, through AMC, performs single port manager functions necessary to support the strategic flow of the deploying forces' equipment and sustainment from the aerial port of embarkation (APOE) and hand-off to the supported CCDR in the APOD. The single port manager provides strategic deployment status information to the supported CCDR and to manage workload of the APOE and APOD based on the CCDR's priorities and guidance. Additionally, contingency response groups (CRGs), if assigned to the theater, provide the same capabilities and functions as USTRANSCOM's single port manager.

c. **C2 Structures**

(1) **Joint/Service C2 Elements.** The air mobility C2 system relies on consistent processes and the ability to rapidly expand to meet the specific needs of the task at hand. This facilitates rapid transition from peacetime to contingency or wartime operations.

(a) **JDDOC.** The integration of intertheater and intratheater movement control is the responsibility of the supported CCMD and USTRANSCOM. Each CCMD with an assigned AOR has a JDDOC, which is modeled after the USTRANSCOM DDOC, and is a CCDR's movement control organization to coordinate, synchronize, and optimize national and theater intermodal resources for theater deployment, distribution, and sustainment operations. Its objective is to maximize CCDR combat effectiveness through improved end-to-end distribution and asset visibility (AV). The JDDOC is normally placed under the control and direction of the CCMD J-4 but may also be placed under other command or staff organizations. In concert with the CCDR's overall priorities, and on behalf of the CCDR, the JDDOC coordinates common-user and theater distribution operations.

(b) **Senior Airfield Authority (SAA).** To facilitate C2 at joint-use airfields, the JFC designates an SAA responsible for safe airfield operations. The SAA is certified in SAA duties and responsibilities, including air traffic control (ATC) and airfield/airspace management, and ensures unity of effort among the various commands and other activities operating on the airfield and serves as the arbitrator between competing interests on the airfield. Depending on the types of air operations being conducted at a specific airfield, the JFC will normally select the SAA from one of the following commands: Army aviation battalion/brigade; USAF expeditionary wings, groups, or squadrons; USMC aircraft wing/group/squadron; contingency response (CR) forces; or Air Force special operations air component special tactics squadrons. The SAA is responsible for overall effectiveness of the airfield and coordination of all requirements for use of the airfield and its facilities. The SAA controls airfield access and coordinates for airfield security with the base commander or base cluster commander or the joint security coordinator for the area if a

base commander has not been designated. In situations where US forces are not the overarching authority for airfield operations (e.g., the host nation [HN] maintains airfield control, operational civil airfield), the SAA maintains oversight for all US or multinational airfield operations and is the primary negotiator with the respective airfield officials for any support required.

(c) **Joint Air Component Coordination Element (JACCE).** The JFACC may establish one or more JACCEs with other commanders' HQs to better integrate joint air operations with their operations. When established, the JACCE is a component-level liaison that serves as the direct representative of the JFACC. The JACCE does not perform any C2 functions, and the JACCE director does not have command authority over any air forces. The JACCE is established by the JFACC to better integrate with other component's senior deployed HQ and may also be assigned to the supported JTF (if the theater JFACC is designated in support to a JTF) to better integrate air component operations within the overall joint force. When established, the JACCE acts as the JFACC's primary representative to the respective commander and facilitates interaction among the respective staffs to communicate, advise, coordinate, and support effective interplay. JACCE expertise should include plans; operations; intelligence, surveillance, and reconnaissance; space operations; airspace management; air mobility; and administrative and communications support.

For more information on the JACCE, see JP 3-30, Joint Air Operations.

(d) **CR Forces.** CR forces are the Air Force's standing initial airbase opening response force, which conduct C2 of on-site air mobility operations and expeditionary port opening operations for USTRANSCOM and CCMDs to enable rapid global mobility. CR forces conduct an array of missions, including assessing airbase capabilities, opening expeditionary airbases, and conducting airfield operations, and may provide support after initial airbase opening in support of partner nations, among other activities. CR forces are normally planned to operate for 45-60 days before handing off responsibilities to follow-on sustainment forces, so planners should consider follow-on requirements early on to facilitate timely CR force replacement and coordinate with the deployed CR force to ensure a smooth mission transition. When USTRANSCOM-assigned CR forces deploy to an AOR, command and support relationships will be determined and specified by SecDef. The respective theater COMAFFOR will retain OPCON of theater-assigned CR forces, with the respective theater AOC executing TACON.

(e) **Tactical air control parties (TACPs)** consist of personnel equipped and trained to assist US ground commanders to plan for and request tactical air support. For example, they may be in control of the airspace where a tactical combat airdrop is planned.

For more information, see Air Force Doctrine Annex 3-05, Special Operations.

(f) **Special tactics teams (STTs)** comprise USAF combat control, pararescue, special operations weather, and selected TACP personnel capable of providing terminal control, reconnaissance, and recovery. Special tactics core competencies include

austere airfield control; objective area weather forecasting; terminal attack control/fire support operations; personnel recovery (PR); battlefield trauma care; and landing zone (LZ) and drop zone (DZ) assessments, establishment, and control. In addition, STTs can provide aircrew flight equipment, logistics, weapons, supply, medical logistics, vehicle maintenance, and radio maintenance. These worldwide, deployable, technical experts are uniquely organized, trained, and equipped to facilitate the air-ground interface during joint special operations and sensitive recovery missions. STTs establish terminal area airspace control (attack, C2, and air traffic services) at remote DZs and/or LZs and austere or expeditionary airfields. As special operations forces (SOF), they cannot sustain these operations for long periods of time. When deployed, STTs become part of the theater SOF and normally fall under the OPCON of the joint force special operations component commander or the joint special operations task force. When supporting theater mobility operations, command authority over STTs should remain in the SOF chain of command. Command relationships and authority should be clearly stated and understood by special operations and air component commanders.

For more information, see Air Force Doctrine Annex 3-03, Counterland Operations, *and Air Force Doctrine Annex 3-17,* Air Mobility Operations.

(g) **Theater Sustainment Command (TSC).** The TSC is the logistics C2 element assigned to the Army Service component command (ASCC) and is the single Army sustainment (less medical) HQ within a theater of operations. The TSC provides logistics and distribution capabilities for port opening, theater opening, theater distribution, and sustainment functions in support of Army forces (ARFOR). Additionally, the TSC may provide lead Service support for designated common-user logistics to other USG departments or agencies, multinational forces, and nongovernmental organizations as directed. The TSC manages theater distribution and executes distribution operations IAW ASCC component logistics staff officer priorities. It develops the ASCC's distribution plan and synchronizes materiel and movement management and is also responsible for coordinating the protection of theater distribution nodes. The TSC can employ one or more expeditionary sustainment commands as an extension of its C2 capability. Each expeditionary sustainment command provides rapidly deployable, regionally focused capability for executing logistic operations that are limited in scope and scale when compared to those the TSC can support.

(h) **Sustainment Brigades (SUST BDEs).** As subordinate commands of the TSC, all SUST BDE HQs plan, synchronize, monitor, and control sustainment operations within their assigned area of operations. SUST BDEs are task-organized to conduct theater opening tasks, sustainment, and theater distribution tasks during the early phases of an operation or across all phases of an operation if it is the only SUST BDE in the JOA. With a different task organization, the same SUST BDE can transition to a theater distribution mission or sustainment mission. Theater opening functions set the conditions for effective support and lay the groundwork for subsequent expansion of the theater distribution system. The critical tasks for a SUST BDE in a theater opening role include theater reception support, staging onward movement/distribution management, life support, and initial theater sustainment.

(i) **Army Tactical Operations Centers (TOCs).** TOCs are found in Army units down to maneuver battalions. Air mobility liaison officers (AMLOs) provide input to TOCs at the appropriate echelon depending on the type or phase of an operation but will normally locate at the division level and above, where air movement and sustainment planning, validation, or prioritization decisions are made. Intratheater airlift requests will be validated and prioritized by the Army Service component commander.

For more information, see Air Force Doctrine Annex 3-03, Counterland Operations.

(j) **Battlefield Coordination Detachment (BCD).** The airlift section of an Army BCD is located within the JAOC and consists of support personnel organized into airlift, air defense, fire support, and airspace control elements. Overall, the BCD monitors and interprets the land battle situation and provides the necessary interface for the exchange of current intelligence and operational data. The airlift section is collocated with the AMD and is responsible for monitoring movements on joint airlift operations supporting ARFOR and providing feedback to ARFOR operations and logistics staff officers. The airlift section is the single point of contact within the JAOC for coordinating and monitoring Army airlift requests, changes, and cancellations. The other sections coordinate fire and close air support for intratheater airlift missions, as appropriate.

For more information, see Air Force Doctrine Annex 3-52, Airspace Control.

(k) **Ground Liaison Officers (LNOs).** Army units may assign ground LNOs to the JAOC/AOC and theater airlift emergency operations centers. In those positions, they monitor and report on the current airlift situation to their parent units and advise USAF mission commanders and staffs on Army component air movement requirements, priorities, and other matters affecting the airlift situation. They are also the principal points of contact between the USAF CRGs and arrival/departure airfield control groups (A/DACGs) for controlling Army theater airlift movements.

3. Sealift

a. **General.** C2 of strategic sealift is exercised in a variety of ways and is largely dependent upon the sealift ships and the role of strategic mobility it supports (PREPO, surge, sustainment, or redeployment). This C2 generally applies to government-owned or government-leased vessels but not to commercial shipping (both US- and foreign-flag liner service) because protocols are in place to facilitate the safe passage of commercial vessels in uncertain or hostile areas.

(1) **Pre-positioning ships.** MSC currently operates pre-positioning ships supporting the USA, USAF, and USMC. These ships are strategically positioned around the globe and contain port opening capability, combat equipment, supplies, and ammunition for use by deployed forces. When off-loaded in theater, and if released by the supported CCDR, these ships become part of the common-user shipping pool under OPCON of CDRUSTRANSCOM.

(2) **Surge ships.** The government-owned surge sealift fleet consists of the MSC-controlled fleet, as well as common-user elements of the MARAD RRF. These ships

include roll-on/roll-off (RO/RO) types for cargo that can be driven and ships that carry containers. When activated and ordered into service, they are placed under OPCON of COMSC in support of US wartime or foreign humanitarian assistance or defense support of civil authorities operations to offset shortages of suitable commercial US-flag ships. Once activated, surge sealift may also be used for routine operations such as force rotations. Fast sealift ships (FSSs) and other surge sealift vessels are normally maintained in a five-day reduced operating status (ROS). Other MARAD RRF ships under USTRANSCOM control, when activated, include crane ships. MSC also contracts commercial surge shipping to augment existing controlled capacity. See Chapter V, "Sealift Missions and Operations," for more on vessel acquisition and activation programs.

(3) **Sustainment.** Sustainment shipping is exclusively obtained by contract and is moved primarily via regularly scheduled and dedicated liner service contracts executed by SDDC but may be moved by SDDC with a one-time-only rate request or by charters executed by MSC. Contracted liner service, which includes containerized and noncontainerized (i.e., breakbulk) cargo, may also include contracted intermodal service from the inland origin or the SPOE to the SPOD or inland destination, depending on the customer requirement. Commercial liner service ocean carriers operating IAW their contractual requirements do not come under military OPCON. However, under special circumstances, when operating in a potentially high-threat area, merchant shipping may voluntarily participate in NCAGS protocols to ensure safe passage. See Chapter VI, "Planning," for details on the NCAGS program.

For more information on sustainment, see JP 3-35, Deployment and Redeployment Operations.

b. **MSC.** Commercial vessels chartered by MSC operate under the OPCON of COMSC in the same way as USG-owned vessels through five geographically organized subordinate regions: Atlantic, Pacific, Europe and Africa, Far East, and Central. As with surge sealift, COMSC normally then delegates OPCON to one of the MSC area commanders in whose area the vessel is operating. However, in cases when, in the opinion of COMSC, the threat to ships under MSC OPCON presents an unacceptable risk, the ships will be placed under the TACON of the Navy component commander of the responsible CCDR. Upon the departure of the ships from the danger area, TACON of the ships reverts to MSC.

c. **SDDC.** Commanding General, SDDC, exercises OPCON of five geographically oriented SDDC transportation brigades located at Camp Arifjan, Kuwait; Military Ocean Terminal Sunny Point, North Carolina; Joint Base Langley-Eustis, Virginia; Sembach, Germany; and Wheeler Army Airfield, Hawaii. As DOD's single port manager for all common-user SPOEs and SPODs, SDDC operates or arranges for operation of and manages global common-user ocean cargo terminals to deliver forces and sustainment to supported commanders. SDDC also books cargo aboard liner service vessels, to include multimodal shipments, and provides oversight of ocean carrier agreements and contracts for liner services. SDDC allocates cargo to MSC organic and chartered vessels.

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CHAPTER IV
AIR MOBILITY OPERATIONS

"…our forces are in distant countries fighting organized terrorists who seek to destroy our nation and destabilize the world. Military operations in these austere places are challenged by the need to deploy and supply troops over great distances. Airlift is a precious lifeline that keeps them fed and equipped, brings the wounded home, and eventually, brings our forces home."

Former Congressman Hugh James Saxton, 4 April 2005

1. General

a. Air mobility operations are a critical aspect of the DTS that enable forces to reach destinations quickly, thereby opening opportunities for the joint force to seize the initiative via speed and surprise and by providing follow-on sustainment of critical materiel. Air mobility operations are enabled by the combination of integrated personnel, equipment, infrastructure, and C2 capabilities into what is known as the global mobility enterprise. MAF are those forces assigned to CDRUSTRANSCOM and the CCDRs that conduct air mobility operations and provide the capability of rapid global mobility. Intertheater air mobility serves CONUS-to-OCONUS and/or AOR-to-AOR air mobility requirements of common-users (i.e., Services and other DOD or non-DOD agencies). Air mobility assets assigned to USTRANSCOM typically execute the majority of intertheater air mobility missions through AMC and the 618 AOC (TACC). Intratheater air mobility missions are typically conducted by air mobility forces assigned or allocated to the CCDRs. Intratheater air mobility assets are normally scheduled and controlled through the JAOC/AOC, if established. USTRANSCOM forces can support intratheater requirements when theater forces are not available. JFCs should address command relationships of USTRANSCOM forces supporting intratheater missions. Finally, although the USAF provides the preponderance of intertheater and intratheater air mobility support (through the air component of USTRANSCOM and/or the other CCMDs), each Service, with the exception of the USSF, possesses some Service-unique air mobility capability, some of which can support DTS requirements.

b. **Air Mobility Operations Core Functions.** Air mobility operations project and sustain forces through the air by rapidly transporting personnel, including patients, and materiel to and from or within a theater, which would be impractical through other modes. It offers commanders a high degree of speed, range, and flexibility to respond to and operate in a wide variety of circumstances and time frames with the means to rapidly deploy and redeploy forces on short notice to any location worldwide. Air mobility's four core functions are airlift, AR, AE, and air mobility support.

(1) **Airlift** is the movement of personnel and materiel via air mobility forces to support strategic, operational, and tactical objectives. These forces provide common-user intertheater and intratheater airlift and also transport forces directly into combat via airland or airdrop methods. To maintain a force's level of effectiveness, airlift sustainment missions provide resupply of equipment, personnel, and supplies.

(2) **AR** is the in-flight transfer of fuel from a tanker aircraft to a receiver aircraft in support of strategic, operational, and tactical objectives. These forces provide common-user AR between theaters (intertheater) or within theaters (intratheater).

(3) **AE** is the movement of patients between medical facilities by fixed-wing air mobility assets or contracted commercial aircraft. Air mobility supports the airlift movement of AE patients on military and/or contracted aircraft to treatment facilities with medical aircrew trained explicitly for this mission.

(4) **Air mobility support** is the C2, aerial port, and maintenance ground support provided to air mobility forces operating around the world. This capability is provided by permanent en route support locations, as well deployable forces capable of augmenting the fixed en route locations or establishing new en route locations. The combination of these fixed locations, as well as the mobile forces, is known as the GAMSS.

c. **Military Air Mobility Forces.** The military component of DTS is composed of the Active Component and the Reserve Component of the USAF, USA, USN, and USMC.

(1) **USAF.** The USAF possesses all DOD air mobility assets designed to execute strategic intertheater airlift missions (i.e., C-5 and C-17). And although other Services maintain some organic AR capability, the USAF also possesses most common-user AR assets (i.e., KC-135, KC-10, and KC-46). With boom and/or drogue capability, these assets are capable of refueling most USAF, USN, and USMC aircraft and can accommodate many foreign aircraft. Most USAF mobility aircraft self-deploy; however, unit support personnel and equipment require airlift to the destination with or before the deploying unit aircraft. Dedication of significant airlift assets to USAF units may be required early in deployment operations. USAF units normally begin air operations shortly after arrival. Therefore, airlift must be able to rapidly deploy full squadron support packages, to include combat support elements, their equipment, and both initial and sustainment supplies.

(a) **Active duty USAF** component forces conduct routine and contingency air mobility missions in support of all common-user requirements worldwide. Commanders have full access to these forces, and they are continuously available for immediate worldwide tasking. Most CONUS-based active duty air mobility forces are under COCOM of CDRUSTRANSCOM and, in turn, under OPCON of CDRUSTRANSCOM's USAF component (i.e., AMC). Similarly, most conventional theater-based active duty air mobility forces are under COCOM of the respective CCDR and, in turn, under OPCON of their respective USAF component.

(b) **Air Force Reserve Command (AFRC) and Air National Guard (ANG)** component forces provide vital airlift, AE, AR, and air mobility support capabilities. Their forces possess the same capabilities as active duty forces and, in some cases, unique capabilities not found in the active force. They complement active duty forces during peacetime through a volunteer system. During contingencies or other national emergencies, where requirements exceed the capability gained by volunteerism, these forces may be brought to active duty status either by federalizing guard forces or activating reserve forces. Approximately 50 percent of the air mobility capabilities are

resident in AFRC and ANG. The majority of the USAF's AR and AE assets are assigned to the Air Reserve Component.

(2) **USA.** The Army often has the largest requirement for common-user airlift. Although the Army has a significant number of Service-retained, small, tactical airlift assets, they cannot provide the capacity and throughput provided by common-user airlift. ARFOR rely heavily on intertheater and intratheater airlift for deployment, airborne operations, and redeployment of personnel and early arriving or departing unit equipment. Sustainment materiel is also moved during deployment, but its delivery must frequently be balanced against force deployment or redeployment requirements because these operations share the same deployment and distribution infrastructure and other resources. The Army's pre-positioning program also requires significant airlift to move troops to designated locations to link up with prepositioned equipment.

(3) **USN.** Sustainment and combat readiness of deployed naval forces depend on flexible and highly responsive intertheater airlift support. Afloat naval forces normally serve as a force enabler and consequently require the least amount of common-user airlift support. However, USN depends on common-user airlift to sustain forward-deployed operations with personnel, materiel, and mail from CONUS to overseas bases. For transporting passengers and cargo intratheater from the APOD to forward logistics sites for further transfer to fleet units, the Navy depends on Service-unique, land-based, fleet-essential airlift aircraft. This Naval organic airlift, known as Navy-unique, fleet-essential aircraft, transports passengers, mail, and critical materiel from forward sites to underway forces. All of the Navy's air mobility capabilities are resident in the Navy Reserve, which conducts vital routine and contingency air mobility, limited AE, and support that is unique to naval fleet operations. Composed of support in peacetime through a volunteer system, during contingencies or other national emergencies where requirements exceed the capability gained by volunteerism, these forces may be brought to active duty status by activating the Navy Reserve forces.

(4) **USMC.** USMC forces require common-user airlift when deploying into a theater as part of either a maritime pre-positioning force (MPF), Marine air-ground task force (MAGTF), or as an air contingency MAGTF. During MPF operations, USMC forces are airlifted to join maritime pre-positioned equipment and supplies at the arrival and assembly area. Additional fly-in echelons of personnel, equipment, and supplies are airlifted into the theater to complete and sustain the force. The air contingency MAGTF requires intertheater airlift of both personnel and equipment. Depending on the mission, operations ashore may require intertheater and intratheater common-user airlift support to sustain and/or support the force.

(5) **USCG.** The USCG operates fixed-wing and rotary-wing aircraft, which are capable of being employed as common-user airlift but are limited by statutory priorities and a lack of strategic support facilities. USCG airlift is normally sufficient to satisfy USCG airlift requirements. In addition, the USCG uses DOD airlift assistance for OCONUS deployments and CCMD-support missions as required. If Congress or the President transfers the USCG from DHS to DOD during wartime (as a Service within the Department of the Navy, per Title 14, United States Code [USC], Section 3), designated

USCG aircraft may be available for common-user airlift. Otherwise, USCG airlift may be requested from Commander, USCG Atlantic Area, or Commander, USCG Pacific Area, under Title 31, USC, Sections 1535 and 1536.

(6) **SOF.** SOF have highly trained aircrews and specially configured aircraft dedicated to conduct specialized air mobility tasks, including infiltration, exfiltration, and resupply of SOF. These aircraft are not part of the common-user system and have limited capability to perform large-scale deployment, sustainment, and redeployment operations. Due to their unique capabilities, special operations aircrew and aircraft may be directed by a theater JFC to support other specific, specialized air mobility missions, including common-user airlift on a case-by-case basis. SOF are augmented by common-user airlift support and, in some cases, selected conventional airlift forces with specially trained aircrews and modified aircraft. For routine logistics requirements, SOF request intratheater airlift support through their respective supporting Service component. When SOF units require airlift to perform special operations-specific missions that require specially trained and equipped airlift forces, they transmit their request through their SOF command channels. Airlift personnel (particularly aircrews) expected to provide employment airlift support to SOF should be fully incorporated into the SOF operation planning process and, if necessary, entered into isolation for tactical rehearsals.

d. **Commercial Augmentation.** DOD heavily leverages civil aviation carriers and partners to accomplish various air mobility operations. National airlift policy dictates that DOD determine which airlift requirements must move via military aircraft (due to special military considerations, security, or limiting physical characteristics) and which requirements can be appropriately filled by commercial air carriers. It is, therefore, prudent for all DOD components to maximize their ability to accommodate civil carriers within the system. Commercial air carriers provide required airlift capability beyond that available in the military. Air mobility operations utilizing civilian carriers consist primarily of airlift assets and their associated civilian ground support and C2 nodes. Commercial carriers can provide significant capability, using existing commercial networks on short notice, which increases flexibility of organic aircraft scheduling. Additionally, the use of civilian aircraft for military missions usually lowers the overall theater presence of the military airlift effort. At the request of the supported CCDR, CDRUSTRANSCOM can establish commercial channel missions to move critically needed items rapidly to an AOR. USTRANSCOM currently maintains global contracts available to CCDRs to enable intratheater support. USTRANSCOM supports CCDR working groups to plan and manage commercial air contracts. The supported CCDR may apportion part of the CJCS-allocated lift by pallet positions to each component. The supported CCDR should establish a theater distribution system to deliver cargo from APODs to final destination to maximize the effectiveness of commercial augmentation missions. Commanders and their staffs should be aware that commercial carriers are generally not subject to the same HN diplomatic clearance procedures as DOD military aircraft nor may they conduct operations into an airbase that is under attack or contaminated at the time of arrival.

(1) **CRAF.** National airlift policy dictates that commanders shift airlift workload to commercial carriers if surge and training requirements have been met and

threat conditions allow. Gaining rapid access to civilian carriers through a flexible and responsive contractual mechanism is a significant force multiplier. To be eligible for airlift contracts, the civil component is composed of civilian airlift carriers who have signed up as members of the CRAF. The CRAF is a voluntary contractual program where civilian carriers agree to augment military airlift during a crisis, in exchange for peacetime defense business. During peacetime, regional contingencies, and major exercises, DOD requirements for passenger and/or cargo airlift augmentation are satisfied by the procurement of airlift from CRAF participants, to the extent that such airlift is suitable and responsive.

(a) The CRAF program is composed of safety-certified US air carriers that provide the international and domestic airlift of cargo and passengers required in operational plans. CRAF carriers are contracted daily to fly various categories of airlift, to include channel airlift, special assignment airlift missions (SAAMs), exercise support, contingency support, and charter airlift. This augmentation is crucial to all common users so USTRANSCOM can meet routine scheduled and surge commitments simultaneously.

(b) When needed, carriers participating in the CRAF program can be activated in one of three stages, with each stage providing greater airlift capacity. The CRAF stages are: I—sized to addresses requirements during a minor regional crisis or small-scale contingency, II—sized to address a major theater conflict or crisis, and III—sized to address requirements during national mobilization. CDRUSTRANSCOM, with SecDef approval, may activate any CRAF stage during national emergencies or defense-oriented situations when expanded civil augmentation of military airlift activity is required. During activation, USTRANSCOM, in coordination with the civil carriers, exercises mission control over the civil aircraft. Commanders and their staffs should be aware that CRAF activation may not be necessary with sufficient volunteerism and support from air carriers.

(2) **Tenders.** AMC has standardized freight tenders for most modes of transportation. The tender structure allows for companies participating in CRAF the freedom to carry cargo internally or via subcontractors, a practice known as CRAF Prime. Tenders offer many advantages. These include less-than-full plane load movement flexibility, lower overall airlift costs, enhanced economic development (in line with national airlift policy), and swift redeployment. Tender companies also cover beddown and aircrew issues, and they enjoy faster overflight clearance processing since they are not usually required to undergo extensive diplomatic clearance procedures.

(3) **Air Mobility Express (AMX).** At the request of the supported CCDR, CDRUSTRANSCOM can establish a special channel mission called AMX to move critically needed items rapidly to an AOR. The supported CCDR may apportion, by pallet positions, part of the CJCS-allocated lift on AMX to each component. For AMX missions to be effective, the supported CCDR should establish a theater distribution system to deliver express cargo from APODs to final destination.

(4) **Next Generation Delivery Service (NGDS).** Shippers use NGDS contracts for small-package delivery requiring express service, time-definite, and door-to-door.

NGDS service is for delivery of packages up to 150 pounds (lbs.) within CONUS and for delivery of packages up to 300 lbs. between CONUS and Alaska, Hawaii, and Puerto Rico. NGDS is also used for international packages (up to and including 300 lbs.) requiring express service, time-definite, door-to-door pickup and delivery when the AMC channel service does not meet shipment delivery performance requirements. For international shipments over 300 lbs., but less-than-full plane load to regions/locations not supported by the AMC channel airlift system, shippers use the Global Heavyweight Service. Note: This does not preclude use of the AMC channel airlift or other options when the shipment does not meet the definition or when NGDS will not meet shipment requirements or the required delivery date.

e. **Non-DOD Common Users**

(1) USG departments and agencies, such as the Department of State (DOS) and the Drug Enforcement Administration, use DOD airlift for activities such as noncombatant evacuation operations (NEOs), counterdrug operations, foreign humanitarian assistance, and defense support of civil authorities. Non-DOD agencies may also request use of common-user airlift for an emergency of lifesaving nature, specifically authorized by statute, in direct support of the DOD mission or requested by the head of a USG department or agency under the Economy Act of 1932 (Title 31, USC, Sections 1535 and 1536) and/or the Robert T. Stafford Disaster Relief and Emergency Assistance Act [short title: Stafford Act]. The Economy Act of 1932 permits one federal agency to request support from another if the amounts are available, the use of an interagency acquisition is in the best interest of the USG, the servicing agency is able to provide the ordered goods or services, and the requested services cannot be obtained more cheaply or conveniently by contract. To obtain common-user airlift, non-DOD agencies submit requests IAW the DTR. Non-DOD agencies are not limited to US-only carriers and have several agreements with international partners.

(2) The Movement Coordination Centre Europe (MCCE) was established in 2007 with participating nations, including the United States, to address a shortage of strategic lift capacity and to coordinate strategic lift assets. The MCCE nations provide visibility on their assets and capabilities in all transportation modes and AR. The MCCE coordinates requirements (i.e., air, AR, inland surface and sealift) and AR requests with providing nations. Reimbursement is primarily done through an exchange of services.

(3) Established in 2008, the Strategic Airlift Capability (SAC) is a multinational initiative that provides its participating nations access to military airlift capability to address the growing needs for strategic and tactical airlift. The twelve SAC participants are Hungary, Bulgaria, Estonia, Lithuania, The Netherlands, Norway, Poland, Romania, Slovenia, Finland, Sweden, and the United States. The SAC's Heavy Airlift Wing is composed of approximately 145 personnel from the 12 nations, which fly and maintain three C-17 aircraft based at Pápa Air Base, Hungary. The wing plans and executes C-17 missions requested by SAC nations.

2. Airlift

a. **General.** The primary mission of airlift is cargo and passenger movement. Airlift supports the US national military strategy by enabling the rapid intertheater and intratheater transportation of cargo and personnel in support of strategic, operational, and/or tactical objectives that would be impractical through other modes of transportation. Common-user airlift provides intertheater and intratheater capabilities to all users of USAF airlift. For scheduling purposes, air mobility missions are conducted on either a recurrent or surge basis. Recurrent operations establish a scheduled flow of individual aircraft to make the most of available aircraft and GAMSS assets. Surge airlift enables rapid and substantial movement of cargo and personnel because a large number of assets are committed toward the operation but can only be sustained for a short time. Surge airlift may disrupt the efficiency of the air mobility system, require significant regeneration time, and complicate interactions of intertheater and intratheater forces. It is often difficult to view the relative contributions of the components of the joint force in isolation. Each is critical to the success of a joint operation, and each has unique capabilities. Common-user airlift achieves an economy of force. Rather than each Service and non-DOD agency providing its own airlift, airlift is consolidated and tasked to support all organizations. While different types of operations will have varying requirements, the following example highlights some of the airlift requirements of the various organizations that use common-user airlift.

(1) **Intertheater airlift** sustainment involves movement of supplies, equipment, and personnel and provides the critical air link between theaters.

(a) Intertheater airlift requirements can often be forecast and identified in the TPFDD for deployment operations but can be tailored to meet changing requirements. TDD resupply via airlift from CONUS to the theaters is critical in maintaining the flow of materiel necessary to sustain operations. Both military and commercial aircraft support the sustainment flow that begins as soon as deployment operations begin.

(b) A key strength of airlift is its ability to quickly redeploy forces from one theater to another, which can deter threats from engaging US forces in the receiving theater.

(c) Diplomatic overflight and landing clearances are key to establishing an efficient air bridge for deployment of TPFDD forces and sustainment. En route aircraft clearances may require lengthy lead times, especially with hazardous cargo, and may be denied at the nation's prerogative. The diplomatic clearances are processed IAW Department of Defense Directive (DODD) 4500.54E, *DOD Foreign Clearance Program (FCP)*.

(d) The JFC should anticipate that formerly contaminated aircraft may be removed from intertheater airlift operations.

(2) **Intratheater airlift** provides air movement of resources, personnel, and materiel within an AOR, as applicable. Typically, aircraft capable of accomplishing a wide range of operational- and tactical-level missions conduct these operations. In theory,

HUMANITARIAN RELIEF OPERATION: TSUNAMI SUPPORT

An undersea earthquake struck the Indian Ocean on 26 December 2004, triggering a series of devastating tsunamis along the coasts of most bordering landmasses. With waves up to 100 feet, the tsunami killed more than 225,000 people in eleven countries, and inundated coastal communities. It was one of the deadliest natural disasters in history.

The loss of life and widespread damage to infrastructure, shortages of food and water, and economic damage prompted a worldwide humanitarian response. Because epidemics were of special concern due to the high population density and tropical climate, the main focus of humanitarian and government agencies was to provide sanitation facilities and fresh drinking water to contain the spread of diseases. There was also a great concern that the death toll could increase as disease and hunger spread. However, the initial quick response successfully minimized those threats.

Operation UNIFIED ASSISTANCE, controlled by Combined Support Force (CSF) 536, delivered 6,685 passengers and 5,444 cargo tons of relief supplies and medical aid. With a focus on air mobility as opposed to combat operations, CSF 536 showcased how Air Mobility contributes to humanitarian relief operations as part of a multinational effort that included nongovernmental organizations.

Various Sources

almost any aircraft can contribute to the intratheater effort, but, in practice, the bulk of intratheater missions are normally accomplished using fixed-wing aircraft provided by the USAF component, with some limited or specialized missions accomplished by fixed-wing and rotary-wing aircraft provided by other Services. Intratheater operations provide both general support, usually through common-user airlift in response to the JFC's movement priorities, and direct support, normally using CCDR-assigned and attached common-user air mobility forces. Additionally, Service-unique airlift assets are responsive to the Service's priorities and are often more specialized fixed-wing transports capable of performing time-sensitive/mission-critical requirements for forward-deployed units. Intratheater airlift requirements include TPFDD force movements and the continuation of sustainment movements arriving in the theater, as well as on-demand movements and routinely scheduled airlift missions for the movement of non-unit-related cargo and personnel.

(a) Intratheater air mobility forces provide two types of support: general and direct. General support is provided through a common-user airlift service to conduct operations within the theater or JOA in response to JFCs' movement priorities. Direct support may be provided with Service-organic transportation assets in a combat zone IAW the Service component commander's priorities, or one Service component may be tasked to provide direct support to another Service component commander or subordinate commander. These missions are generally unplanned and respond to the supported commanders' requirements.

(b) Units move within the theater in response to the JFC's operation or campaign plan. Once combat units are deployed to a theater, the JFC may use intratheater airlift to maneuver forces to exploit weaknesses in the enemy's position. In this capacity, airlift enables the JFC to reposition forces expeditiously, achieve surprise, and control the timing and tempo of operations.

(c) Movements within a theater also permit the continuing resupply of forward units. These requirements are normally predictable, regular, and quantifiable when the forces are not engaged in combat operations. During pre- or post-hostilities, these requirements can usually be fulfilled through a fixed resupply schedule. However, once forces are engaged, resupply requirements increase dramatically and become more unpredictable and variable. The ability of airlift to rapidly and flexibly accommodate the critical resupply requirements of units engaged and operating in such a dynamic environment provides commanders with an essential warfighting capability.

b. **Airlift Methods.** Airlift missions provide the delivery of cargo and/or personnel in one on two methods: airland or airdrop. The delivery method is based on user requirements, type of environment, availability, adequacy, security of airfields, LZs and DZs near the objective area, threats to the objective area, and aircraft/aircrew capability. Airlift operations are defined by the nature of the mission rather than the aircraft used. Most aircraft are not exclusively assigned to one operational classification. In fact, the vast majority of the air mobility force is capable of accomplishing any classification of airlift.

(1) **Airland Operations.** Airland delivery is the preferred and most frequently used method for most air movements. In this method, airlifted personnel and materiel are disembarked, unloaded, or unslung from an aircraft after it has landed or, in the case of vertical takeoff and landing aircraft, after it has entered a hover. The type of airlift support provided via airland operations depends on the cargo (e.g., size, quantity), level of priority, destination airfield/LZ suitability, and distance between APOE and APOD. Users requesting airlift support via airland operations should request desired location and timeline via standard JOPES processes rather than a specific airlift aircraft and/or method. Airland operations generally fall within the following four techniques:

(a) **Hub and Spoke Operations.** Intertheater airland operations normally offload personnel and materiel at a main operating location within the theater followed by intratheater airlift to move designated personnel and equipment to forward operating locations. This employment technique, referred to as a hub and spoke operation (see Figure IV-1), enables planners to maximize the capabilities of each aircraft type, and it provides a safe location for transloading operations by avoiding flights into high-threat or contaminated locations. This is particularly important for nonmilitary aircraft which typically lack defensive countermeasure equipment. Hub and spoke operations permit flexible dispersion (to include last-minute changes in requirements) between the various forward operating bases (FOBs). Units should consider the required materials handling equipment (MHE) and transportation assets needed to transfer personnel, equipment, and cargo from one aircraft to another.

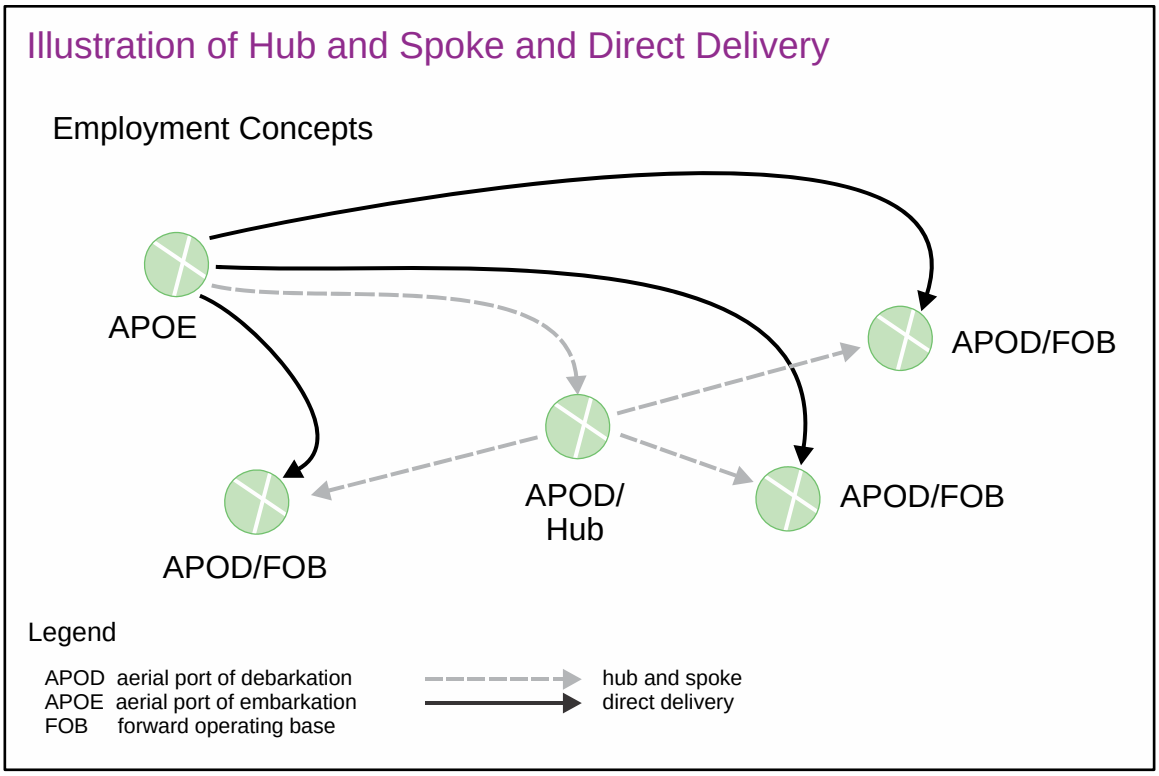

Figure IV-1. Illustration of Hub and Spoke and Direct Delivery

(b) **Direct Delivery.** Direct delivery involves airlifting personnel and materiel from ports of embarkation to forward operating locations in the theater. By bypassing intermediate operating bases and the transshipment of payloads typically associated with hub and spoke operations, direct delivery typically shortens in-transit time and reduces congestion at main operating bases. Direct delivery can use airland or airdrop delivery methods. For example, personnel can be airlifted from CONUS and delivered directly to the theater by airlanding or airdropping them at a forward operating location. While these operations are more complex, they can significantly reduce the required GAMSS footprint by eliminating transshipping operations, reducing the number of diplomatic clearances required, and, in most cases, decreasing closure time. However, direct delivery is not the best solution for large movements or when there are multiple FOBs that must be serviced. Most direct delivery operations require an air bridge and associated AR support, which increases the number of aircraft required to accomplish the mission.

(c) **Lily Pad Operations.** Aircraft ranges, crew requirements, and mission limitations may dictate the need for intermediate stops. This practice is also called lily pad operations or stage operations (see Figure IV-2). The final leg into the AOR or JOA may terminate at the final destination or at a theater hub. These operations require en route support locations and may place a heavier burden on GAMSS.

(d) **Air Bridge.** Air bridge operations refer to in-flight refueling of aircraft between CONUS and OCONUS terminals, augmented by designated AR tracks (see Figure IV-3).

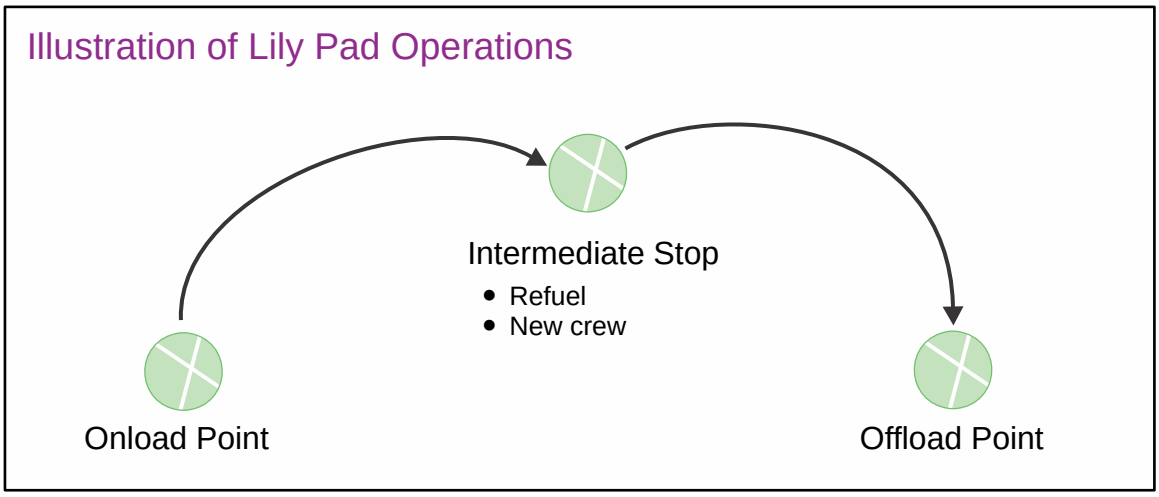

Figure IV-2. Illustration of Lily Pad Operations

(2) **Airdrop Operations.** In this method, cargo and/or personnel are unloaded from aircraft in flight. Most airdrop procedures use parachutes to deliver loads to the ground. This enables commanders to project combat power into areas lacking suitable or secure airfields. For example, airdrop is an option when using an uncontaminated aircraft to deliver mission-critical cargo into a chemical, biological, radiological, and nuclear (CBRN) environment. Airdrop enables commanders to capitalize on the element of surprise because of the speed of delivery and the vast number of potential objective areas for the employment of forces. However, the additional weight and space required for parachute rigging and cushioning material reduces the amount of cargo and/or personnel that each aircraft can deliver.

(3) **Airdrop Categories.** The type of airdrop depends on the threat, the required payload, the accuracy required, and whether mass is required on the DZ. Users requesting airlift support via airdrop operations should request desired location and timeline via standard JOPES processes rather than a specific airlift aircraft and/or method.

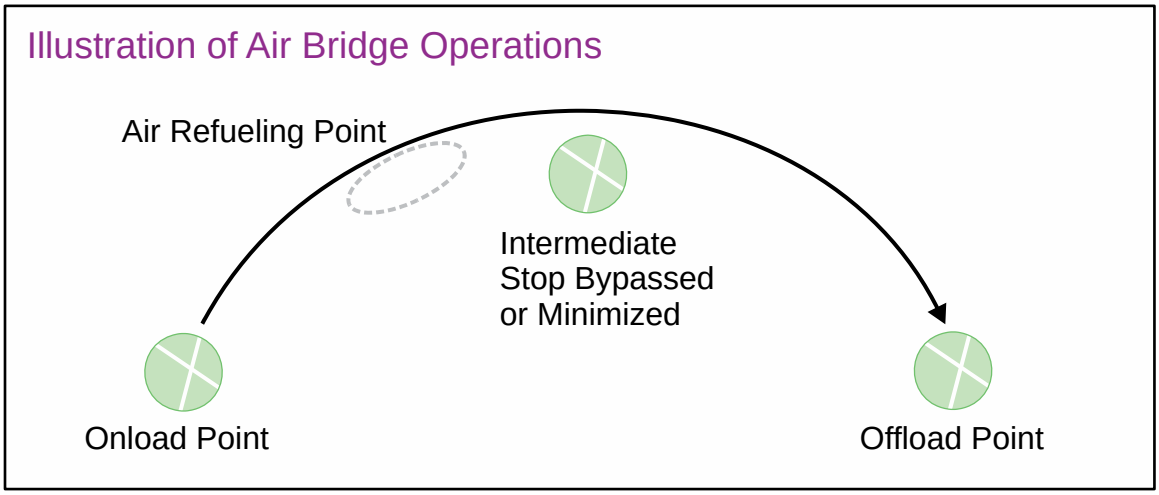

Figure IV-3. Illustration of Air Bridge Operations

(a) **Personnel.** Personnel airdrops use static line or free fall procedures. In general, static line airdrops occur at altitudes below 1,500 feet above ground level to minimize paratroopers' exposure to ground threats while under the canopy. Conversely, specialized free fall airdrops normally occur above 5,000 feet above ground level, which can insert personnel as part of a clandestine operation.

For additional information, see applicable Service manuals and directives (i.e., Field Manual [FM] 3-21.220, Static Line Parachuting Techniques and Training, *and Army Techniques Publication 3-18.11,* Special Forces Military Free-Fall Operations).

(b) **Heavy Equipment.** Heavy equipment loads consist of vehicles, equipment, or supplies rigged for airdrop on platforms that are extracted singularly or sequentially from the aircraft by parachutes.

(c) **Container Delivery System (CDS).** A CDS airdrop is a gravity-assisted airdrop utilizing A-22 containers (up to 10,000 lbs.) rigged to different parachutes. The three rigging varieties are CDS, using low-rate-of-fall chutes; high-velocity CDS, which uses extra energy absorbing material and contain supplies to withstand high-velocity impact; and improved CDS, which uses various types of parachutes and benefits from using joint precision airdrop system (JPADS) software.

(d) **JPADS.** JPADS is a family of Global Positioning System (GPS)-guided, self-maneuvering systems that leverages wind data and GPS telemetry data to calculate a more accurate ballistic wind and a more refined release point which can potentially increase drop accuracy. The basic JPADS system consists of a common mission planner, an airborne guidance unit, and multiple steerable parachute/parafoil systems. Airspace deconfliction is a critical JPADS employment planning factor. While JPADS is not a universal airdrop solution, it is the preferred method for high-altitude drops over difficult terrain where limiting the exposure of ground troops to enemy fire and minimizing risk to aircraft and aircrews is a paramount consideration.

(e) **Free Fall.** Free fall airdrop involves dropping small items such as packaged meals or unbreakable objects like hay bales without the use of a parachute. This includes airdrop of leaflets in support of military information support operations and the tri-wall aerial distribution system used to airdrop containers of humanitarian daily rations during humanitarian airdrop operations.

(4) **Airlift Missions.** Depending on user requirements, there are a large variety of airlift mission categories that can normally support common-user airlift requirements. These categories are channel missions, SAAMs, operational support airlift (OSA), contingency missions, combat movement and sustainment, and training/exercise missions.

(a) **Channel Airlift Missions.** Normally, airlift requirements are fulfilled through regularly scheduled channel missions over fixed-route structures between two or more predesignated points with availability to all customers. These regularly scheduled requirements are validated through the appropriate Service organization to USTRANSCOM or supported CCMD and then tasked by the 618 AOC (TACC) or

respective theater AOC/AMD or another appropriate C2 node. Channel airlift missions support passenger and cargo movement over established worldwide routes that are served by scheduled DOD aircraft under AMC or under the control of a CCDR's AOC/AMD. USTRANSCOM also conducts channel missions via contracted and scheduled commercial aircraft. The vast majority of airlift sustainment will move on either distribution channel missions or contingency channel missions. Distribution channel missions are volume-driven, in which airlift is regularly scheduled against the volume of cargo moving through an APOE. Contingency channel missions support specific operations and fly on an as-needed schedule based on cargo and passenger movement requirements from/to the predesignated points of the channel. Distribution and contingency channel are structured such that there can be flexibility in adding airlift to accommodate surges in volume of cargo. Both types of channel users reimburse the TWCF based on weight/cube of cargo or a designated cost per passenger. In many cases, channel missions operate as part of an integrated or linked set of movements from point of origin to point of need to consistently deliver requested logistics support when and where the customer requires. USTRANSCOM, in collaboration with supported CCDRs, establishes TDD objectives and parameters that are key to successful warfighter support.

(b) **SAAM.** SAAMs are dedicated airlift missions procured by users to satisfy a supported CCDR's validated requirements. Short-notice or priority transportation requirements due to changing tactical situations or other developments may require a rapid response by airlift movement. During a developing crisis and before movement begins, Services or other airlift coordination agencies should submit SAAM requests directly to the supported CCDR for approval or as directed by supporting or supported CCDRs. SAAMs support DOD users and USG departments and agencies (e.g., DOS, Federal Bureau of Investigation, and Drug Enforcement Administration). Banner missions are SAAMs specially planned to provide airlift in support of the President of the United States (PHOENIX BANNER), the Vice President of the United States (PHOENIX SILVER), and other White House-directed missions (PHOENIX COPPER).

(c) **OSA.** OSA missions are a special classification of airlift supporting the movement of high-priority cargo and passengers with time, place, or mission-sensitive requirements (including DOD and federal senior officials as well as validated AE PMs). DOD overarching guidelines apply for the approval and use of OSA. OSA supports authorized DOD travelers and cargo, which includes CCDR and Service component commander needs. CONUS requirements are validated and scheduled by the joint operational support airlift center (JOSAC) at USTRANSCOM. Flying units, via Joint Chiefs of Staff (JCS)- and Service-established procedures, indicate specific aircraft availability for Service, JOSAC, and AE missions. OCONUS requirements are validated and scheduled IAW Service and/or CCDR and component-defined processes. During contingencies, JFCs should utilize their OSA aircraft to supplement the theater's air mobility capability.

For more information on OSA missions, see DODD 4500.56, DOD Policy on the Use of Government Aircraft and Air Travel, *and Department of Defense Instruction (DODI) 4500.43,* Operational Support Airlift (OSA).

THE EFFECTIVENESS OF AIRLIFT

When Princess Patricia's Light Infantry Regiment, a Canadian unit with 850 troops and 1500 tons of equipment, redeployed from Kandahar, Afghanistan, following their tour supporting Operation ENDURING FREEDOM in 2002, United States Transportation Command (USTRANSCOM) determined airlift was the best mode available. The Air Mobility Command (AMC) chose C-5s staged at Diego Garcia in the Indian Ocean with five C-5s with aircrews, aircraft maintainers, aerial porters, and a planning staff. Because of the fuel requirement, the C-5s could not carry their maximum cargo loads and fly nonstop from Afghanistan to Diego Garcia, so en route air refueling was required. This enabled the C-5s to fly at their maximum cargo weight, which decreased the number of aircraft and sorties into Kandahar by half.

This operation highlights two key points: first, Commander, USTRANSCOM, used the appropriate authorities to determine resource allocation. Had C-17s been used, it would have required 45 sorties, as opposed to 28 C-5 sorties. The aircrews flew tactical arrivals and departures, and ground personnel conducted engine running onloads to minimize ground time in Kandahar, thereby reducing ground times from the normal three hours, 15 minutes down to as little as 25 minutes. The time savings was primarily due to the elimination of ground refueling. Minimizing the number of aircraft and sorties maximizes safety in all cases but it is especially important in combat zones.

The second point this operation highlighted was that often it is better to use a support command relationship. While delegating operational control of aircraft to the supported combatant command component commander can be more effective, many times it is more effective to pass tasking requirements to USTRANSCOM and let AMC draw from its entire air mobility force and utilize its command and control and planning resources to conduct the operation.

Various Sources

(d) **Contingency Missions.** Contingency missions operate in direct support of an OPORD in which movement requirements are identified in the appropriate TPFDD in JOPES. Contingency missions involve deployment, sustainment, and redeployment via intertheater or intratheater airlift. Contingency operations are normally shaped by the CCDRs who develop an OPLAN or OPORD with specific logistical requirements for operations directed by the President, SecDef, or JCS. Deployment and redeployment transportation requirements are planned using JOPES. JFCs validate their intratheater TPFDD to the theater AOC's AMD (if assigned) for planning and execution, while intertheater TPFDD requirements are sent to USTRANSCOM for planning and execution. The airlift system has the flexibility to surge and meet requirements that exceed routine, peacetime demands for cargo and passengers. For example, during Operation ENDURING FREEDOM (OEF) and Operation IRAQI FREEDOM (OIF), new channel routes and structures were established to support significantly increased airlift demands.

1. **NEOs** are directed by DOS or other appropriate authority, in conjunction with the DOD, whereby noncombatants and civilians are evacuated to safe havens or to the United States from foreign countries when their lives are endangered by war, civil unrest, or natural disaster. These missions are characterized by short timelines, increased coordination and oversight, and public affairs involvement.

For more information, see JP 3-68, Noncombatant Evacuation Operations.

2. **Foreign humanitarian assistance** operations provide assistance to areas suffering from natural or manmade disasters to relieve or reduce human suffering, disease, hunger, or privation. These operations may be directed by the Secretary of State or the CCDR.

For more information, see JP 3-27, Homeland Defense; *JP 3-28,* Defense Support of Civil Authorities; *and JP 3-29,* Foreign Humanitarian Assistance.

(e) **Combat Employment and Sustainment.** Combat employment and sustainment missions rapidly move forces, equipment, and supplies from one area to another in response to changing battle conditions. Combat employment missions enable a commander to insert surface forces directly and quickly into battle and to sustain combat operations. Airlift affords commanders a potent offensive advantage with a high degree of combat maneuverability, permitting them to bypass enemy troop strongholds and complicate the enemy's defensive preparations. This task, in most circumstances, cannot be accomplished by other means. Once delivered to the target area, the inserted force may be totally dependent upon subsequent airlift operations for sustainment, movement, withdrawal, or redeployment. Another important aspect of combat employment and sustainment is joint forcible entry. In performing this mission, airlift forces are usually matched with airborne, air assault, light infantry, or SOF specifically designed for delivery by air. This mission normally involves inserting airborne forces via airdrop and will most likely require integration with combat air forces (CAF) who will provide suppression of enemy air defenses and escort operations. The combat employment and sustainment mission usually accounts for a small percentage of total airlift sorties; nevertheless, its importance is far greater than the number of sorties indicates.

For more information, see JP 3-18, Joint Forcible Entry Operations.

(f) **Other Airlift Missions**

1. **Executive airlift missions** provide safe, reliable, connected, and protected air transportation for national leadership in direct support of national security objectives. Executive airlift is a strategic mobility enabler dedicated to transporting the President, Vice President, Cabinet and Congress members, and other DOD-approved senior officials and foreign dignitaries. Executive airlift uses specially configured and modified aircraft to conduct highly sensitive and often classified worldwide/theater missions enabling senior leadership to employ diplomatic, informational, military, and economic instruments of national power. These special air missions are primarily executed using VC-25, C-32, C-40, and C-37 aircraft. However, due to the nature of the mission,

executive airlift leverages aircraft including OSA, Service, CCDR, and other mobility assets to fulfill time-sensitive senior-leader requirements. Under direction of the Assistant Vice Chief of Staff of the Air Force, the Chief of the United States Air Force Special Air Missions Division (AF/A3M-CVAM) is the coordinating authority and is responsible for scheduling executive airlift missions originating in the CONUS that are supported by USTRANSCOM-assigned executive airlift assets. CDRUSTRANSCOM is the overall manager for the USAF's special air mission aircraft and maintains OPCON of CONUS-based special air mission aircraft through the AMC/CC. Executive airlift missions originating OCONUS are supported by CCDR-assigned executive airlift aircraft and coordinated through the CCMD's JAOC. AF/A3M-CVAM and the theater AOC's AMD collaborate regarding asset availability to ensure required special air mission users have the needed airlift to meet requirements. OCONUS-based special air mission aircraft are under OPCON to the respective CCDR who normally delegates OPCON to the theater COMAFFOR. AF/A3M-CVAM and White House Military Office provide detailed mission planning.

2. **Prime Nuclear Airlift Force (PNAF)/Emergency Nuclear Airlift Operations (ENAO).** Airlift missions supporting nuclear operations are classified as PNAF or ENAO. PNAF refers to the aircraft and aircrews that provide peacetime logistical support for the movement of nuclear weapons and nuclear components. The objective of ENAO is to move nuclear cargo safely under US custody during emergency operations. Airlift aircrew may be tasked at any time to airlift nuclear weapons. The amount of preparation time and degree of assistance received depends on the length of time the MAJCOM has to move the weapons.

3. **Exercises.** Movement requirements for CJCS-directed or -sponsored exercises are identified in the TPFDD. Mobility assets participating in exercises enable units to gain additional training from unique mission scenarios and objectives that are not regularly accomplished during normal or contingency operations.

4. **Training.** Training missions are flown for crew currency and proficiency. One specific type of training mission is the joint airborne and air transportability training (JA/ATT) mission. JA/ATT missions are a joint effort between air mobility units and DOD agencies. These airlift missions are CJCS-directed and managed by AMC or theater USAF component command. They provide basic airborne and combat airlift continuation and proficiency training to USAF air mobility providers and joint air mobility users.

3. Air Refueling

a. **General.** AR is a critical force multiplier across the competition continuum. Tanker aircraft significantly expand available deployment, employment, and redeployment options by increasing the range, payload, and flexibility of air forces, including strike, support, and surveillance aircraft. AR is an essential capability in conducting air operations worldwide and is especially important when overseas/forward staging basing is limited or not available. Receiver requirements and tanker availability dictate how much fuel can be offloaded, where the refueling will take place, and when the rendezvous will occur. In the

same manner, the nearly unlimited flight endurance provided by tankers is an indispensable component of the US strategic airborne command post. It provides the capability to continue to direct military action from an aircraft—regardless of the situation. AR supports both intertheater and intratheater operations in one of two types of airspace: an anchor area or along an AR track. The choice of anchor area or AR track depends on several factors, such as receiver mission and routing, number and routing of tankers, offload required, receiver number and type, weather, time available to accomplish rendezvous and refueling, and availability of airspace.

(1) **Intertheater AR** supports the long-range movement of combat and combat support aircraft between theaters. Intertheater AR operations also support global strike missions and airlift aircraft in an air bridge. AR enables deploying aircraft to fly nonstop to their destination, reducing closure time. OPCON of intertheater AR is typically held by AMC/CC, with C2 provided by the 618 AOC (TACC). Whenever possible, intertheater missions should be planned either over, or in close proximity to, existing air bridge routes. This enables tankers positioned for air bridge support to also provide emergency AR support. When intertheater missions cannot be planned along air bridge routes and the mission is deemed important enough to provide emergency AR support, planners should use a combination of ground and airborne spare aircraft.

(2) **Intratheater AR** supports operations within a CCDR's AOR, as applicable, by extending the range, payload, and endurance of combat and combat support assets. Both theater-assigned and USTRANSCOM-assigned AR aircraft can perform these operations. When USTRANSCOM-assigned AR forces participate in these operations, they are typically allocated to the CCDR who exercises TACON over these forces through the COMAFFOR. Although the primary purpose is to refuel CAF operating within the theater, consideration should be given to the best utilization of tanker aircraft to meet the President and SecDef's objectives.

(3) **Anchor Areas and AR Tracks.** While AR is normally conducted in friendly airspace, missions may require operations over hostile territory and in contested airspace. Anchor areas and tracks may place tankers in an extremely vulnerable position and should be limited to friendly airspace when possible. AR missions over hostile territory should be conducted only after careful risk considerations and when at least regional air superiority is achieved.

(a) In anchor areas, the tanker flies a racetrack pattern within defined airspace while waiting for receiver aircraft to arrive. Once joined with the receiver, the tanker then flies in an expanded racetrack pattern while refueling the receiver. Anchor AR is normally used for intratheater operations where airspace is confined or where receivers operate in a central location. Anchor areas are best suited for small, highly maneuverable aircraft, especially in marginal weather conditions.

(b) AR along a designated AR track is the preferred method for intertheater refueling. Normally, tracks have a designated AR entry point, rendezvous initial point, rendezvous control point, and a designated AR exit point. Tracks are used when receiver aircraft are required to maintain a predetermined course to an objective area. Finally, AR

tracks are best when either tanker or receiver performance would be impacted by multiple turns.

(4) **AR Airspace**

(a) **Airspace and ATC.** Many nations have specific restrictions on AR operations conducted within their sovereign airspace that can impact how operations are planned. OEF, OIF, and Operation ALLIED FORCE have highlighted the importance of airspace required for AR, especially during combat support missions. A lack of AR airspace can limit the amount of combat and combat support sorties the JFACC is able to schedule and execute. AR airspace planning for these operations requires sufficient allowances for ingress/egress of both receivers and tankers and deconflicting aircraft operating at significantly different speeds. Experience in OEF and OIF shows that without sufficient airspace deconfliction, the greatest threat to friendly forces can be from mid-air collisions with our own forces.

(b) **Intratheater AR Airspace.** Most intratheater AR is conducted in airspace specifically designated for AR. For peacetime operations, AR airspace is published in flight information publications with boundaries, altitudes, and communications frequencies agreed to by the ATC authorities. During a contingency, AR airspace close to threats will change frequently, and its altitudes and communications frequencies will be classified to avoid predictability. Routing to and from the AR airspace will also change in response to changes in air operations and threats to friendly forces.

(c) **Air Corridors or Operating Areas.** Airlift and AR operations often require secure air corridors or operating areas (e.g., DZ and landing/assault zone run-in and AR tracks). These may be shared with other air missions. Regardless, the use of a corridor requires close coordination between the appropriate airspace control authority, the area air defense commander, JAOC/AOC, and all other joint force component ground and aviation elements. Changing of the corridor system may be required depending on the threat.

b. Because AR increases the range of other aircraft and their capability to carry larger takeoff payloads, this may enable basing many types of aircraft at locations well outside the threat range. AR enables some aircraft to participate in contingency operations without having to forward deploy. Operations based from CONUS or established main operating bases reduce the theater logistics requirements, thereby simplifying sustainment efforts. Positioning forces outside the threat's reach permits a greater portion of combat forces to concentrate on offensive rather than defensive action. As a result of the reduced need to forward deploy forces, AR reduces force protection requirements as well.

c. USAF tanker aircraft may perform a bulk cargo role to augment core airlift assets. AR aircraft can transport a combination of passengers and cargo, in a dual role, while performing AR. In some circumstances, it may be more efficient to employ AR aircraft strictly in an airlift role. This capability is most important during deployment operations when airlift requirements are highest and requirements for theater support refuelings are the lowest. Dual-role operations may be as simple as carrying opportune cargo or passengers on a routine intertheater AR mission, or it may be as complex as a fighter unit

move. Deploying AR units may be tasked to use their organic capacity to transport unit personnel and support equipment or passengers and cargo from other units. AR aircraft may also be used to support airlift requirements such as routine channel operations or SAAMs. During contingencies, commanders should continually evaluate tanker taskings to airlift missions, weighing the loss of AR missions against the benefits gained by a larger, augmented airlift capacity.

d. **Common-User AR Aircraft.** Although other Services, nations, and commercial providers maintain some organic AR capability, the USAF possesses the preponderance of common-user AR assets (e.g., KC-135, KC-10, KC-46, HC-130, MC-130) that are available to the joint force and US allies. Similar to airlift forces, CDRUSTRANSCOM has COCOM of most CONUS-based active duty AR forces and delegates OPCON to AMC/CC. Similarly, theater-assigned AR forces come under COCOM of the respective CCDR and OPCON of the theater COMAFFOR. These forces perform core and specialized AR missions and are readily available for tasking and deployment. The USN has a limited AR capability while the USMC has its own AR capability with KC-130s, which are typically dedicated to supporting MAGTF operations (although requests for support to other components are possible). The majority of the USAF's AR assets are assigned to USAF Reserve and ANG units. During crises, volunteers or activated AFRC and/or ANG units augment the active duty AR force, providing substantial increases in AR capacity. Peacetime access to AFRC and ANG forces is provided through a system of volunteerism or mobilization authorization for non-wartime events such as defense support of civil authorities and preplanned missions. Major contingencies, however, normally require activation of AFRC and/or ANG units.

e. **AR Systems.** AR is conducted using one of two systems: boom or drogue. Most USAF aircraft and a relatively small number of allied aircraft use the boom system, while USN aircraft, USMC aircraft, and USA and USAF SOF refuelable rotary-wing or tiltrotor aircraft, and most allied aircraft use drogue refueling.

(1) **Boom refueling** utilizes a rigid, telescoping tube with movable flight control surfaces that a boom operator on the tanker aircraft extends and inserts into a receptacle on the receiving aircraft. This enables the rapid transfer of fuel under high pressure to the receiver and is necessary to meet the rapid fuel offload requirements of large receiver aircraft (e.g., B-1, B-52, C-5, C-17) or multiple fighter-type aircraft. The KC-135, KC-10, and KC-46 aircraft are equipped with a boom system.

(2) **Drogue refueling** employs a reelable, flexible hose with a drogue (sometimes referred to as a basket) that extends behind the tanker aircraft to a receiver aircraft that must be equipped with a probe to accomplish drogue refueling. The drogue provides a funnel to aid the insertion of the probe into the hose. Drogue refueling provides fuel transfer at a significantly lower offload rate than boom refueling. The KC-135, KC-10, KC-46, HC-130, KC-130, and MC-130 can provide drogue refueling. In addition, the Navy conducts drogue refueling using F/A-18 E/F aircraft equipped with the aerial refueling system. The KC-135 can be configured on the ground for either boom or drogue refueling (via an adaptor installed on the boom); however, it cannot switch from the boom system to the drogue system (and vice-versa) in-flight. The KC-10 has both a boom and center-line

GLOBAL STRIKE

In response to the September 11, 2001 terrorist attacks on the United States, the United States Air Force carried out the longest bombing mission ever. While not recommended, it shows the capabilities of aerial refueling. A B-2 bomber launched from Whiteman Air Force Base, Missouri, which then received numerous air refuelings en route to its targets in Afghanistan. The first was conducted off the California coast, then near Guam, the straits of Malacca, and finally near Diego Garcia in the Indian Ocean before flying into Afghanistan airspace. The B-2 loitered there, dropped some of its munitions, flew out of the country to receive another refueling, and then returned to drop more weapons before receiving its final refueling en route to landing at Diego Garcia. Total flight time was 44 hours.

Various Sources

drogue system and can refuel via both methods in-flight but not simultaneously. In addition, the KC-10 and some KC-135 can be equipped with external wing-mounted AR pods that allow the aircraft to conduct drogue, as well as boom, refueling with the net result of increasing the number of aircraft able to be serviced. The KC-46 has a boom, center-line drogue, and wing-mounted AR pods but cannot accomplish all these methods simultaneously. HC-130, KC-130, and MC-130 aircraft provide dedicated drogue refueling to rotary-wing, tiltrotor, and conventional aircraft.

f. **AR Missions**

(1) **Global Strike Support.** AR assets are a critical enabler for global strike operations (conventional or nuclear). For example, AR significantly increases a bomber's range and endurance by directly enhancing its flexibility to strike distant targets and maximizing its operational utility for warfighter mission requirements. Tanker availability can also be critical to overall mission success through support of a wide variety of support package aircraft refueling requirements. In addition, AR can mitigate operational risk for strike or support aircraft by decreasing reliance on OCONUS/forward basing locations. AR is key to the US ability to rapidly strike targets in distant locations and recover to safe areas. The ability to perform long-range strike missions from CONUS is particularly crucial.

(2) **Air Bridge Support.** An air bridge creates an air line of communications (ALOC) linking CONUS and a theater, or any two theaters. AR makes accelerated air bridge operations possible since en route refueling stops for receivers are reduced or eliminated. It reduces reliance on forward staging bases, minimizes potential en route maintenance delays, and enables airlift assets to maximize their payloads. This significantly increases the efficiency of airlift operations by making possible the direct delivery of personnel and materiel. Tankers allocated for theater support may be called upon to provide AR support to air bridge operations. In conjunction with the JAOC director, the DIRMOBFOR must coordinate with the COMAFFOR on the capabilities of, and requirements for, tankers assigned or allocated to the theater to determine their ability to provide air bridge support. The COMAFFOR will determine air bridge support using

CCDR-assigned and -allocated forces based on the JFC's guidance, as doing so may adversely impact the theater's operation/campaign as well as impact logistics support. If theater-assigned/attached forces cannot fully support an air bridge, the DIRMOBFOR will coordinate with USTRANSCOM for air bridge support using USTRANSCOM forces.

(3) **Aircraft Deployment Support.** AR assets can extend the range of deploying combat and combat support aircraft, enabling them to fly nonstop to an OA. This capability increases the deterrent effect of CONUS-based forces and enables a rapid response to regional crises. The capability of aircraft to fly nonstop to a theater may eliminate the need to obtain landing or overflight rights from foreign nations that may want to remain neutral in a given conflict. AR is heavily dependent on the capabilities rendered through deployment support. Force extension is the AR of one tanker by another and is the most efficient means to provide deployment support, given a limited number of tanker aircraft. This capability can be used whenever the fuel requirements of the escorting tanker and its receivers exceed the tanker's takeoff fuel capacity. Since takeoff fuel is limited by the amount of payload carried, dual-role tankers may require force extension. Not all tankers are refuelable. All KC-46s and KC-10s and a small number of KC-135s are equipped as receivers and, therefore, can be force extended. Whenever possible, force extension missions should be planned along air bridge routes to use tankers supporting air bridge movements.

(4) **Coronet missions** support the movement of multiple air assets, usually fighter aircraft, during deployment rotations, contingencies, exercises, and aircraft movements for logistics purposes. The tanker aircraft in a Coronet mission provides fuel to avoid intermediate stops and provides weather avoidance, oceanic navigation, communication, and C2 of the mission. Coronet missions normally have long lead times for planning, tasking, and execution. Planners should use this time to maximize the overall efficiency of the movement for both receivers and tankers, while remembering their purpose is safe and effective movement of the receivers.

(5) **Theater Support to CAF.** Intratheater AR enables fighter aircraft to increase their range, endurance, and flexibility. During combat operations, the highest priority for intratheater AR forces is normally supporting combat and combat support aircraft executing air operations. AR enables combat aircraft to carry a larger payload on initial takeoff by decreasing the amount of fuel carried in its tanks. Extending endurance reduces the number of sorties required, decreases ground support requirements at forward locations, and may reduce the number of aircraft deployed to an AOR. Theater-based AR assets bolster the security of combat and combat support air assets by allowing them to be based beyond the range of threats. Because AR increases the range of other aircraft and their capability to carry larger takeoff payloads, many types of aircraft may be based at locations well outside the range of threats. AR enables some aircraft to participate in contingency operations without having to forward-deploy. Operations based from CONUS or established main operating bases reduce the theater logistics requirements, thereby simplifying sustainment efforts.

(6) **Special Operations Support.** AR enables SOF to maintain a long-range operating capability. The USAF maintains AR crews who are trained to air refuel fixed-

wing, rotary-wing, and tiltrotor special operations aircraft. Successful mission completion requires special equipment, specialized crew training, and modified operational procedures.

(7) **PR.** The HC-130 is the preferred AR capability to complement HH-60 helicopters and Guardian Angel assets (combat rescue officers; pararescuemen; and survival, evasion, resistance, and escape specialists). Having access to the HC-130 drastically increases the range of the HH-60 and, therefore, significantly reduces the response time for PR operations. Additionally, the long-endurance characteristics and communications equipment of the larger USAF AR aircraft enable them to provide a limited capability to assist PR operations as a communications and coordination link between airborne and ground-based elements. In the case of a downed pilot, the tanker assets will attempt to remain on scene until PR forces arrive. During this process, the tanker will normally remain at altitude, relaying information where communications connectivity is easiest, and will refuel on scene forces as required. Additionally, as other supporting aircraft arrive on station, tankers can refuel such aircraft affecting the rescue.

For further information on PR, refer to JP 3-50, Personnel Recovery.

(8) **Joint and Multinational Operations.** Joint and multinational operations require teamwork, unity of effort, and principles that are fundamental to AR. When working with other Services and nations, there is a potential for differences in capabilities, procedures, and terminology, which may cause misunderstandings and confusion. Such operations, therefore, require a standard set of tactics, terminology, and procedures. For example, North Atlantic Treaty Organization (NATO) Allied Tactical Publication (ATP)-3.3.4.2, *Air-to-Air Refueling*, standardizes operating procedures and enhances interoperability among NATO member nations possessing AR assets. Commanders of a multinational force should agree as soon as possible on a common set of doctrine, tactics, and procedures for particular operations. Additionally, airspace may be a primary limitation to AR operations. Standardizing multinational cell formation procedures allows a variety of AR assets to operate in compressed airspace. This is particularly important when large numbers of tankers may be refueling multiple receivers or formations of receivers. To generate the maximum combat power in multinational operations, all military capabilities must be integrated to the fullest extent. Multinational exercises are a key component to common doctrine and interoperability that will provide additional flexibility, deployability, and sustainability in multinational air operations.

(9) **Emergency AR.** Fuel emergencies can result from missed refuelings, en route winds greater than planned, battle damage, or excessive time engaged with enemy aircraft or targets. AR aircraft are capable of maintaining ground or airborne alert to provide short-notice support for airborne fuel emergencies. While dedicated ground alert aircraft can meet emergency AR requirements, excess fuel capacity of airborne tankers is another method of providing emergency AR capability. Putting more fuel in a tanker than is required to complete the mission, known as “tankering fuel,” gives that aircraft a built-in, though limited, emergency refueling capability.

(10) **Nuclear C2.** AR assets enable worldwide communication to nuclear forces through support of US Strategic Command's Command and Control System, National Airborne Operations Center, and USN's take charge and move out aircraft. AR support to these assets ensures resilient and survivable C2 of the nation's nuclear arsenal. AR significantly increases the time aloft of these assets which, in turn, enables direct-to-force nuclear response and enhances flexibility of the worldwide force. AR support is vital to these missions, as they would otherwise be unable to remain airborne during downtime of land based control nodes.

4. Aeromedical Evacuation

a. **AE Mission.** AE specifically refers to USAF-provided, time-sensitive, en route care of casualties to and between medical treatment facilities (MTFs) using organic and/or contracted fixed-wing aircraft with medical aircrew trained explicitly for this mission. AE forces can operate across the competition continuum, in all operational environments, and as far forward as aircraft are able to conduct air operations. These efforts are coordinated with the JAOC/AOC, the 618 AOC (TACC), and the joint force surgeon. Specialty medical teams may also be assigned to work with the AE aircrew to support patients requiring more intensive en route care. The USAF AE system provides intertheater and intratheater PM support. USTRANSCOM and CCMDs perform common-user AE with available air mobility aircraft. The sending MTF (e.g., emergency medical support, combat support hospital, or permanent hospital [military/civilian]) or AE liaison team requests the PMs. The liaison teams coordinate with joint service ground medical personnel to input patient movement requirements (PMRs) into the USTRANSCOM Regulating and Command and Control Evacuation System for validation. A patient movement requirements center (PMRC) coordinates with the theater AECT to schedule PM. The USAF AE system is the vital link between roles of care for PM to CONUS for final patient disposition to meet patients' definitive care needs.

b. **AE Aircraft.** While AE missions are normally conducted with USAF C-17, C-130, and KC-135 aircraft, all other USAF air mobility aircraft (e.g., KC-10, KC-46, C-5, C-12, and C-21), as well as USAF SOF and USMC C-130s, may be used for PM. Additionally, accredited contracted civilian air ambulance companies with qualified contracted aircraft (e.g., LR35/36, Gulfstream) with qualified civilian AE crews are utilized when the mode of transport, consistent with patient care requirements, demonstrates effective resource utilization and cost-effectiveness.

c. **PMRCs**

(1) **Joint Patient Movement Requirements Center (JPMRC).** A JPMRC is a joint activity established to coordinate the joint PMRs function for a joint force operating within an AOR for no more than 180 days until a permanent capability is established. JPMRCs coordinate intratheater PM and coordinate with the appropriate United States Transportation Command patient movement requirements center (TPMRC) (Americas, East, West) to provide management for intertheater regulating and PM. Synchronization of plans and additional guidance related to the world wide PM system is coordinated through the USTRANSCOM Office of the Command Surgeon.

(2) **TPMRC.** The various TPMRCs support PM requirements in their designated AORs: TPMRC-Americas (US Northern Command and US Southern Command), TPMRC-East (US Central Command, US Africa Command, and United States European Command [USEUCOM]), and TPMRC-West (United States Indo-Pacific Command [USINDOPACOM]). TPMRCs are responsible for theater-wide PM and coordinate with MTFs to identify the required treatment/transportation assets. The TPMRC communicates this "transport-to-bed" plan to the theater Service transportation component or other agencies responsible for executing the mission. TPMRCs coordinate with the USTRANSCOM Office of the Command Surgeon, which provides global oversight; implements policy; and standardizes regulations, clinical standards, and safe movement of uniformed Services and other authorized or designated patients.

(3) **USTRANSCOM Office of the Command Surgeon** is a joint activity reporting directly to the CDRUSTRANSCOM that serves as the DOD single manager for global PM and patient movement items (PMIs), as well as providing PM through the DTS. This includes development of PM policy, standardization of procedures and information support systems, process standardization, oversight of the PMRCs, and synchronization of operational PM plans.

d. **AE C2.** Movement of patients requires special airlift considerations to comply with patient-driven altitude, pressurization, stops, and remain overnight restrictions. Additionally, planning is needed to account for medical equipment approved for use with aircraft systems. Several processes occur to tailor the operational AE mission once the validated PMRs have been identified.

(1) The AECT within each theater's JAOC/AOC performs AE operational mission planning, tasking, and scheduling of airlift and AE assets to support joint PMRs during intratheater and intertheater missions. The AECT responds to PM requests that have been validated by the PMRC.

(2) For contingency operations or combat, the AECT provides AE C2 for assigned or allocated AE forces. The AECT is the source of AE operational expertise within the AMD. The AECT will coordinate AE operational mission planning, tasking, scheduling, and execution of airlift and AE assets in coordination with the PMRC. The AECT works closely with other JAOC/AOC divisions and teams to ensure AE missions are completely integrated into the ATO.

(3) AE units conducting intertheater AE will be OPCON to CDRUSTRANSCOM with C2 provided by the 618 AOC (TACC) and is accomplished using designated or retrograde organic MAF aircraft. Alternatives to organic MAF aircraft may be pursued when competing airlift requirements reduce aircraft availability. These alternatives could include use of other organic military airlift, contracted civilian air ambulance, or authorization for commercial travel for ambulatory patients who do not require in-flight supportive medical care.

(4) Use of contracted commercial aircraft for AE is dependent on the threat in the region. Normally, civilian aircrews are neither trained nor equipped to fly into hostile or

AEROMEDICAL EVACUATION SUCCESS STORY

On April 10, 2020, Air Mobility Command (AMC) aircrew and medical personnel conducted the first operational use of the transport isolation system (TIS) to perform an aeromedical evacuation (AE) of three United States Government contractors who tested positive for the Coronavirus Disease 2019 (COVID-19), from Afghanistan to Ramstein Air Base, Germany. The AE mission, REACH 725, marked the first operational use of the TIS since its development during the 2014 Ebola outbreak in West Africa, and the first movement of COVID-19 positive patients aboard United States Air Force aircraft. The TIS is an infectious disease containment unit designed to minimize risk to aircrew and medical attendants, while allowing medical care to be provided to patients in-flight. Upon receipt of a warning order from United States Transportation Command on April 8, the 618th Air Operations Center (Tanker Airlift Control Center) (618 AOC [TACC]) tasked a TIS-trained AMC aircrew and medical team at Ramstein to prepare to execute the mission within 24 hours. REACH 725 was composed of a full TIS force package, which includes one C-17 and aircrew carrying two TIS and medical support personnel, consisting of AE specialists, critical care air transport team members, infectious diseases doctors and technicians, and TIS operators. Hours before the crew stepped to the C-17, Brigadier General Jimmy Canlas, 618th AOC (TACC) Commander, led a teleconference call in which he provided clear guidance in line with the recently-released AMC COVID-19 Patient Movement Plan. Recently developed by AMC planners, the plan provided aircrew and support personnel a comprehensive and detailed process to transport patients aboard pressurized, military aircraft, including patients afflicted with highly contagious diseases like COVID-19. With the plan set, the crew of REACH 725 safely transported the three patients nearly 4,000 miles from Afghanistan to Ramstein, who were then transferred to Landstuhl Regional Medical Center for medical treatment. "I'm exceptionally proud of our Airmen who executed this historic AE mission," said General Maryanne Miller, AMC Commander.

Adapted from Air Mobility Command Public Affairs, April 11, 2020 https://www.amc.af.mil/News/Article-Display/Article/2146663/mobility-airmen-conduct-historic-first-aeromedical-evacuation-mission-using-tra/

CBRN environments. Except in very limited circumstances involving contracting for specialized air ambulance services, commercial aircraft will not be used to move contaminated or contagious patients.

(5) Intratheater AE is the movement of casualties and/or patients within the theater of operations by aircraft directly or laterally to hospitals or to definitive care within the theater. Intratheater-assigned AE forces will be OPCON to the CCDR with C2 provided by the CCDR's JAOC to provide ITV of PMs and a handoff to the 618 AOC (TACC) for intertheater lift using designated or retrograde organic MAF aircraft.

Further information on AE PM can be found in JP 4-02, Joint Health Services; *AFTTP 3-3.AOC,* Operational Employment-Air and Space Operations Center; *Air Force Doctrine Annex 3-17,* Air Mobility Operations; *and AFTTP 3-42.5,* Aeromedical Evacuation.

5. Air Mobility Support

a. **General.** Air mobility support is provided by what is commonly referred to as the GAMSS. Successful employment of the airlift and AR force is contingent upon establishing and maintaining a GAMSS force that enables aerial deployment, employment, sustainment, and redeployment of US forces across the competition continuum. Specifically, air mobility support forces provide a rapid, responsive, worldwide foundation for airlift and AR.

(1) The majority of GAMSS assets are assigned to CDRUSTRANSCOM (OPCON to AMC/CC), with the exception of the CR assets assigned Commander, USINDOPACOM (OPCON to Commander, Pacific Air Forces), and Commander, USEUCOM (OPCON to Commander, United States Air Forces in Europe), which are necessary to meet their specific regional/geographic needs. Prior to deploying to an AOR, the command relationships must specify the type and degree of control exercised by commanders in the theater, the providing commander, and the associated C2 organizations. These forces, combined with the interrelated processes that move information, cargo, and passengers, make up GAMSS. This structure consists of a number of CONUS and en route locations, as well as deployable GAMSS forces capable of conducting air base opening (ABO) operations or augmenting the fixed en route locations or establishing operating locations where none exist. These deployable forces are stationed both in CONUS and at select overseas bases. Pre-positioning GAMSS forces at locations supporting sustained airlift or AR operations must be accomplished ahead of any combat force deployment.

(2) The GAMSS is composed of a limited number of permanent en route support locations plus deployable/expeditionary forces that deploy under the rapid global mobility plan. Permanent en route support locations are constructed to handle day-to-day peacetime air mobility operations. Deployable GAMSS forces are designed to conduct ABO operations at locations globally where mobility support capabilities don't currently exist or can be tailored to augment these en route permanent locations during large-scale contingencies. GAMSS forces enable USTRANSCOM to establish a network of support locations (terminals) linked together by ALOCs to create the air bridge. GAMSS forces, by establishing new airfields or augmenting permanent terminals, make it possible for airlift aircraft to move personnel, equipment, and supplies to the desired location. GAMSS forces, airlift, and AR assets are very limited assets; therefore, their use requires detailed and coordinated planning to meet USTRANSCOM validated requirements. GAMSS forces normally deploy early in an operation to establish en route and destination support. Planners need to remain cognizant of, and plan for, any/all GAMSS force airlift requirements, as a single ABO team can require up to seven C-17s for their complete movement to the deployed location.

b. **GAMSS Components.** GAMSS forces are drawn from USAF active duty, AFRC, and ANG components. Collectively, these components provide the forces that make up

the fixed CONUS and overseas GAMSS organizations, as well as the deployable forces stationed primarily in CONUS. These components support operations throughout the range of military operations. Several USAF MAJCOMs possess GAMSS elements (AMC, Pacific Air Forces, and United States Air Forces in Europe). The USAF Expeditionary Center has administrative control of the fixed AMC GAMSS forces at OCONUS locations, as well as deployable assets at CONUS locations, with OPCON to AMC/CC. Unless otherwise directed, the AMC/CC retains OPCON of deployed GAMSS forces.

c. **GAMSS Core Capabilities.** The three primary capabilities provided by GAMSS are C2, aerial port, and aircraft maintenance. While the GAMSS functions at fixed locations are robust, deployable assets are designed to be temporary in nature with a planned redeployment or replacement schedule coordinated. En route locations are normally tasked to provide C2, aerial port operations, and aircraft maintenance services. However, basic and other support functions (e.g., combat support, aircrew flight equipment, intelligence) can augment in-place operations, creating a more robust throughput and support capability. The level of support can be tailored to match the workload requirements. Consequently, deployable GAMSS forces can provide a method for expanding capabilities at an existing location or establishing capabilities where none exist. To ensure continuity of operations and to enable GAMSS forces to appropriately reconstitute for follow-on operations, planners should coordinate the replacement and redeployment of GAMSS forces immediately upon initial GAMSS forces laydown at the deployed location.

(1) **GAMSS C2.** CDRUSTRANSCOM delegates OPCON of airlift and AR assets to the AMC/CC but, in very rare instances, to a CCDR's COMAFFOR. In both cases, GAMSS forces provide initial C2 to higher HQs for deploying forces through organic, deployable C2 systems. Additionally, they set up stand-alone C2 operations for airlift operations. GAMSS forces perform C2 functions on behalf of the higher HQ at the local level to accurately plan, flow, and track air movements and provide ITV of equipment and passengers. C2 requirements may include various radio and satellite communications systems, as well as mobility mission planning and execution systems supporting their airfield operations, as well as those of supported air mobility aircrews that may transit or operate from their location. AMC-assigned mobility support forces normally use this capability to report to the 618 AOC (TACC), while theater-assigned support forces normally report to their theater AOC.

(a) Timely exchange of information within, between, and among GAMSS components is critical to effective mobility operations. This includes:

1. Geospatial imagery intelligence and geospatial information requirements.

2. Airspace coordination and management requirements.

3. Restrictions imposed at airfields.

4. CR forces, STT, AMLO, and ground force assault team requirements.

5. Unique requirements (e.g., security and command, control, and communications for nuclear weapons).

6. Asset ITV.

7. Cargo, hazardous materials, passengers, and patient information.

8. Weather information.

9. Intelligence products and exchange of current and early warning intelligence.

(b) One of the most important features of GAMSS is its support of ITV and mission tracking/planning. Commanders depend on accurate and timely ITV of assets to more efficiently manage those assets and associated supporting operations. Consequently, the effectiveness of GAMSS relies significantly on integration of ITV data into a comprehensive picture. Without such integration, the ability to manage rapid global mobility is compromised.

(c) Various computer and communications systems, along with their associated databases and peripheral equipment, are included as elements of GAMSS.

(2) **Aerial Port.** An aerial port is an operating location, usually at an established airfield, which is designated for the sustained air movement of personnel and materiel. Deployed aerial port operations are sized based on forecasted workload requirements and working maximum (aircraft) on ground (MOG) expectations. En route GAMSS units possess a robust aerial port capability designed specifically for the locations they are responsible to support. GAMSS units are designed to establish and operate air mobility terminals and have the ability to onload and offload a set number of aircraft based on forecast workload requirements. In addition, GAMSS aerial port specialists provide expertise to establish marshalling yards and traffic routing for cargo, aircraft servicing, passenger manifesting, and air terminal operations center services. GAMSS aerial port personnel are also responsible for the transmission of departure and arrival information to IGC, to include movement manifests and ITV data provided electronically by the moving unit. Deployable GAMSS aerial port teams are not designed for long-term, sustained aerial port operations. Deployable GAMSS team replacements if required must be defined, planned, sourced, trained, and deployed to backfill quickly (normally within 60 days) to permit the GAMSS teams to forward deploy or redeploy and reconstitute for follow-on missions.

(3) **Aircraft Maintenance.** GAMSS aircraft maintenance support is based on forces and materiel sourced from CONUS and OCONUS units. Planners and units receiving maintenance augmentation from GAMSS forces should consider supplementing maintenance capability as soon as practical to ensure sustained operations. Deployable GAMSS maintenance units are not designed to provide sustained maintenance capabilities past their 60-day deployed duration status. Deployable GAMSS units that provide only

aircraft maintenance capability can be tailored contingency support elements (CSEs) or maintenance recovery teams. Maintenance CSE packages are tasked to established locations for a specified amount of time to provide limited support for specific mission(s) flow. Deployable GAMSS maintenance teams normally deploy as part of a CR force to set up initial quick-turn maintenance capabilities at austere location. Their capability is essentially limited to basic ground handling and routine servicing operations. The small maintenance recovery teams include specific back-shop maintenance specialties tasked to provide aircraft troubleshooting and repair for a specific aircraft system/requirement.

d. **Fixed Air Mobility Support Assets.** Fixed GAMSS assets are sized, manned, and equipped to support peacetime common-user air mobility operations. Fixed assets consist of the following:

(1) **621st Contingency Response Wing (CRW)** organizes, trains, and equips all subordinate, deployable GAMSS assets. While not itself deployable, the CRW directly supports AMC's rapid response units that provides deployable CR forces, as well as AMD augmentation forces and AMLOs.

(2) **Air Mobility Operations Wing (AMOW), Air Mobility Operations Group (AMOG) and Air Mobility Squadron (AMS).** AMOWs are located OCONUS and provide a single-commander, distinct-mission capability with the appropriate level of authority to ensure response time and agility to meet changing theater requirements and support the CCMD. The AMOWs are composed of AMOGs and associated AMSs. AMOGs formulate plans; establish procedures; and direct the administration of their subordinate AMS, operating locations, and detached units in support of operations. The AMOG provides logistics, intelligence, and air transportation planning to meet operational requirements. AMSs are situated at key overseas en route locations to operate air terminal facilities in support of the DTS for numerous DOD common users. AMS personnel generate, launch, and recover air mobility missions and en route support aircraft. Each AMS operates an air mobility control center, which tracks air mobility missions and serves as the C2 conduit to the 618 AOC (TACC) and theater AOC/AMDs executing DTS missions.

e. **Deployable Air Mobility Support Assets.** Deployable GAMSS assets are constructed/tailored to rapidly deploy to meet mission requirements, within 12 hours of notification, requiring fewer airlift aircraft for a duration of 60 days or less. Deployable GAMSS teams are equipped and manned to support the validated/specified contingency or direct combat support for air mobility operation. CR forces conduct expeditionary port opening operations for CDRUSTRANSCOM and CCDRs to enable rapid global mobility. CR forces conduct an array of missions, including assessing airfield capabilities, opening expeditionary airbases, and conducting austere airfield operations. Active duty CR forces maintain readiness to deploy within 12 hours of notification. CR forces are designed for a decreased transportation and logistics footprint to enable rapid deployment and are designed to deploy for a maximum of 60 days. CR forces deploy with organic supplies for five days after which they will require resupply from the supported CCMD. After no more than 60 days, the CR force must hand off responsibilities to follow-on/sustainment forces so they can forward deploy or redeploy to reconstitute for subsequent contingency

operations missions. All planners must immediately consider follow-on/backfill requirements at the start of deployed CR force operations to facilitate timely CR force replacement and coordinate with the deployed CR force to ensure a smooth mission transition. CR forces are organized into tailored force elements known as contingency response elements (CREs), and contingency response teams (CRTs) that are composed of a broad cross-section of USAF skill sets to accomplish a range of initial airfield/airbase opening and mobility support operations.

(1) **CRG.** The CRG is an organization tasked to deploy to secure, assess, open, and initially operate airbases for the USAF component of their CCMD. The CRG may initially represent the senior USAF leadership and, for this reason, the CRG is normally commanded by an O-6. The groups consist of a standardized force module dedicated to the base opening task. This module includes a tailored section of all forces needed after seizure, or handoff from seizure forces, to assess and maintain security of an airfield, establish initial air mobility C2, and operate the flow of air mobility into and out of the airfield. CRGs may open the airfield for the USAF, another Service, or even a multinational force partner. To ensure continuity of operations, CRGs coordinate with USTRANSCOM, 618 AOC (TACC), theater COMAFFOR/JFACC staff, and follow-on forces to expedite and synchronize transfer of authority to sustainment forces and the development of host unit support agreements. CRGs comprise approximately 115 personnel with a capability to support a continuous working MOG of two aircraft for 24-hour-a-day operations. CRGs may be augmented with various support forces to meet unique mission requirements, such as explosive ordnance disposal or rapid engineer deployable heavy operational repair squadron engineer, which provides initial airfield assessment and expedient construction/repair capabilities for some scenarios.

(2) **CRE.** A CRE is a tailored expeditionary C2 force responsible for providing continuous on-site air mobility operations management. It is a temporary organization commanded by a commissioned officer that deploys to provide air mobility mission support when C2, mission reporting, and/or other support functions at the destination do not meet operational requirements. In addition to providing C2 and communications capabilities, CREs provide aerial port, logistics, maintenance, force protection, weather, medical, and intelligence services, as necessary. CRE size is based on validated requirements and projected operations flow and local conditions. CREs comprise approximately 58 personnel with a capability to support a continuous working MOG of two aircraft for 24-hour-a-day operations.

(3) **CRT.** A CRT is a tailored expeditionary C2 force that performs the same functions as a CRE but on a smaller scale. CRTs are composed of 11-30 personnel and normally led by a noncommissioned officer. They provide a level of aerial port and C2 services capable of supporting a working MOG of one aircraft for 12-hour-a-day operations, with 24-hour C2 coverage.

(4) **CSE.** A CSE consists of personnel and equipment providing specific contingency support capabilities other than core C2 such as a contingency air load planning team, joint air cargo inspections, or an airfield survey team. They can be deployed as an

element of CRE or CRT or as a small-scale, stand-alone capability. These teams may require base operating support (BOS).

(5) **AMLOs** are rated USAF MAF officers, selected, trained, and equipped to serve as joint integrators between supporting USAF and supported JFCs, staffs, and agencies during planning and execution of the joint warfighting functions movement and maneuver, and sustainment operations using USAF assigned, gained, or contracted fixed-wing air assets.

(a) AMLOs have coordinating and direct liaison authority to serve as the single authoritative voice on air mobility issues representing and advising both the supporting and supported commanders and to provide essential coordination for enhanced interoperability between the global mobility enterprise, supported CCMDs, joint force partners, and other authorized mobility users in garrison and forward deployed. Commanders rely on AMLOs to assess, train, advise, and assist their staffs and agencies to enable rapid global force employment, endurance, and efficiency to achieve strategic, operational, and tactical objectives.

(b) AMLOs integrate with supported joint force service and component staff function(s) at the echelon(s), making planning, validation, prioritization, preparation, and execution decisions for fixed-wing air movement and maneuver, and sustainment operations. AMLOs are normally positioned at agreed upon Army MAJCOMs, numbered armies corps, divisions, brigade combat teams, and selected brigade or regiment echelons; theater or expeditionary sustainment commands; and USMC field commands and service components, Marine expeditionary forces (MEFs), and the MEFs' major subordinate commands. The USAF trains and equips AMLOs to deploy forward and maneuver on order by the commander with OPCON.

(c) AMLOs assigned and gained to USTRANSCOM represent the AMC/CC and operate as extensions of the AMC Air Force Forces staff and 618 AOC (TACC) in garrison and forward deployed. When deployed, AMLOs typically work closely with and provide operations support to the theater DIRMOBFOR.

(6) **Expeditionary air/ground liaison elements** assist joint, interagency, international organization, and multinational users in the planning, preparation, inspection, and employment of joint cargo, passengers, and documentation for airworthiness. This is accomplished through one-on-one time, at the tasked departure location, with aviation subject matter experts and the joint user cargo and passengers. Additionally, these elements will assess, monitor, and evaluate the joint user's compliance for military and contracted airlift and provide a feedback loop to AMC and USTRANSCOM.

For more information, see Air Force Doctrine Annex 3-17, Air Mobility Operations, *and Air Force Doctrine Annex 3-52,* Airspace Control.

f. **Other Joint/Service Air Mobility Support.** These consist primarily of mobile assets that provide the applicable JAOC/AOC(s) with the information, as well as C2/communication capabilities that are required to establish an airfield and/or LZ/DZ and

to monitor/control the ongoing air operation in support of USAF aircraft conducting air operations. Various Service organizations support air mobility operations by providing the operational capabilities essential for APOD reception. The USAF, through AMC's aforementioned AMOWs and CRW, provide much of the operational and logistic support needed to receive arriving aircraft. USN air cargo companies are units that may augment the USAF's aerial port operators or conduct independent aerial port operations. They interface with USN fleet logistics and AMC's air operations. During a major theater deployment, the USMC will employ a Marine air-ground task force deployment and distribution operations center (MDDOC) to coordinate all strategic, operational, and tactical lift requirements for land and air forces. Through its cargo transfer capability, the Army typically provides A/DACG support to interface with the USAF CRG/CRE to begin staging and onward movement for deploying personnel, equipment, and materiel. Specific Service organizations include:

(1) **JTF-PO (APOD).** USTRANSCOM also provides a JTF-PO to rapidly open and operate both APODs and SPODs and initial distribution networks for joint distribution operations supporting foreign humanitarian assistance and contingency operations. The JTF-PO (APOD) consists of an air element for airfield operations and a surface element for cargo transfer and movement control. The surface element operates a forward distribution node for clearance of cargo from the APOD. The JTF-PO (APOD) is designed to arrive early at an airfield to establish single port management and provide ITV from the beginning of an operation. The JTF-PO deploys under the authority of the CDRUSTRANSCOM in direct support of the CCDR and is designed to operate for 45-60 days before relief from follow-on forces.

For more information on JTF-PO, refer to JP 4-09, Distribution Operations.

(2) **A/DACG.** A/DACGs are found in the USA, USN, and USMC. A/DACGs assist the mobility forces in processing, loading, and off-loading deploying and arriving Service component personnel and equipment. The A/DACG is a provisional organization that assists AMC and the deploying unit to receive, process, and load or unload personnel and equipment. A/DACGs coordinate and control the movement of personnel and materiel through air terminals for deployment and redeployment. The capabilities of the A/DACGs are tailored based on the mission and military units performing aerial port operations. Composed mainly of personnel and resources from theater sustainment units along with elements of the moving unit, the A/DACG is task-organized to reflect the type of move and degree of support available at the air terminal. Service transportation support at air terminals assist with the deployment, redeployment, and sustainment of forces. A/DACGs are deploying Service component's counterpart to a USAF CRG/CRE. When units from more than one component will transit a terminal simultaneously, the JFC should direct one component to provide the A/DACG. This will normally be the component with the largest movement requirement and augmented, as necessary, by the other components. An A/DACG will:

(a) Coordinate and control the reception and/or loading of units for deployment and redeployment.

(b) Coordinate with the installation commander and the commander of each Service deploying unit.

(c) Provide a liaison to the mobility force (normally the air terminal operations center).

(d) Perform the processing, loading, and off-loading of deploying and arriving Service component personnel and equipment when no mobility force is available.

For more information on A/DACGs, see Army Techniques Publication 4-13, Army Intermodal Operations.

(3) **Movement Control Team (MCT).** Army MCTs coordinate the movement of personnel and materiel from air terminals to their designated destinations. MCTs operate independently of the A/DACG and are responsible for controlling movement on an area basis.

For more information on MCTs, see Army Techniques Publication 4-16, Movement Control.

(4) **Airfield Survey Team.** The USAF poses the majority of airfield survey capabilities via STTs and CRTs. The airfield survey team personnel are trained and equipped to deploy to airfields, assess the capabilities of the airfield and its supporting facilities, and relay that information to the appropriate authorities who deploy any needed augmentation or engineer forces.

For more information on airfield surveys, see Army Techniques Publication 3-17.2/Marine Corps Reference Publication (MCRP) 3-20B.1/Navy Tactics, Techniques, and Procedures (NTTP) 3-02.18/AFTTP 3-2.68, Multi-Service, Tactics, Techniques, and Procedures for Airfield Opening.

(5) **DZ Support Team.** These Army teams direct airdrop operations on DZs to support airdrops (up to three aircraft) of personnel, equipment, and CDS bundles and consist of at least two personnel, including an airborne jumpmaster- or pathfinder-qualified leader. Their responsibilities are to: evaluate DZs, evaluate ground hazards, and ensure DZ suitability and the ability to recover airdropped personnel and materiel. When the supported ground force commander has insufficient organic capability or capacity to support airdrop operations, USAF STTs and/or AMLOs may be requested to provide needed capabilities or additional capacity.

For more information on DZ support teams, see FM 3-21.38, Pathfinder Operations.

(6) **MDDOC.** The MDDOC is a standing organization located within the USMC MAGTF command element that conducts integrated planning, provides guidance, and coordinates and monitors transportation and inventory resources as they relate to management of the MAGTF's distribution process. Functions normally conducted by the MDDOC must be performed simultaneously, both in garrison and forward, to facilitate force generation, embarkation/deployment, debarkation, employment, sustainment, and

retrograde/redeployment. The size and scope of the MDDOC scales to meet mission requirements for the size of the MAGTF it supports. In theater, the MDDOC coordinates activities per the respective CCDR theater policy and guidance

(7) **Security Forces.** Air mobility missions operate in areas where a threat may exist. To mitigate these threats and provide limited aircraft security when appropriate base defense forces are not present, AMC maintains deployable security forces called Phoenix Raven teams comprise individuals trained and equipped to provide protection of the aircraft when transiting high-risk areas. These forces may be augmented by CCDR-controlled fly-away security teams, who are trained to meet requirements to detect, deter, and counter threats to personnel and aircraft at deployed locations by performing close-in aircraft security and advising aircrew on dealing with detainee personnel. These forces may be part of an airfield opening effort but do not provide sustained primary airfield security.

CONTINGENCY RESPONSE SUPPORT: OPERATION ENDURING FREEDOM (1 JUNE–10 JULY 2010)

In February 2010, the 571st Contingency Response Group (CRG) deployed Airmen to Mazar-e-Sharif (MeS), Afghanistan, tasked by Commander, United States Transportation Command (CDRUSTRANSCOM), to establish a forward logistics base in support of the 30,000-troop surge for Operation ENDURING FREEDOM. The 571 CRG was also tasked to provide command and control, aerial port, aircraft maintenance, security, air traffic control, and logistical support (e.g., weather, intelligence). Working in conjunction with the 41st Transportation Company (TC) and 82nd Sustainment Battalion (SB), the mission of this 250-member United States Transportation Command Joint Task Force-Port Opening (JTF-PO) team was to build a high-speed logistics lane to facilitate the flow of US Army personnel, equipment, and supplies into Northern Afghanistan and the onward movement to other provinces. To accomplish its mission, the JTF-PO would need to dramatically increase the throughput and movement velocity of the existing airfield at MeS so it could handle a significant increase in military and commercial airflow. CRGs and rapid port opening elements are intimately familiar with each other's capabilities because they train and exercise together during JTF-PO validation exercises. For this mission, however, the assigned rapid port opening element (RPOE) was retasked to align with another CRG to support the humanitarian relief mission in Haiti after a devastating earthquake. With no other RPOE available, agreements were generated with the 82nd Airborne Sustainment Brigade that provided tactical control of the 41st TC and direct support of a team from the 82nd SB Headquarters Staff to stand up an ad hoc JTF-PO. The 41 TC provided ground movement capability to transport cargo/personnel to a forward distribution node, while 82 SB provided passenger processing and in-transit visibility and an Army perspective during negotiations with Regional Command-North (RC-N) and host-nation entities. The JTF-PO worked with their German International Security

Assistance Force (ISAF) hosts, RC-N leadership, and Afghan military and civilian officials to ensure smooth airfield/ramp operations, security, and communications.

The JTF-PO also built a strong relationship with the Navy Seabee element that was invaluable in the building of a new cargo yard and fuel farms. Finally, the JTF-PO worked closely with the joint special operations task force element that provided information and intelligence for JTF-PO operations and used a section of the cargo yard as a forward area rearming and refueling point for their rotary-wing assets.

For this mission, the JTF-PO remained under the operational control of CDRUSTRANSCOM but worked in a direct supporting relationship with United States Central Command (USCENTCOM). The JTF-PO worked closely with, and provided support to, multiple agencies, including US Forces Afghanistan, RC-N of the ISAF, the USCENTCOM Joint Deployment and Distribution Operations Center, the Air Mobility Divisions at Air Forces Central Command and US Air Forces in Europe, and 618th Air Operations Center (Tanker Airlift Control Center).

The JTF-PO at MeS ensured the expeditious movement of over 18,100 short tons and 8,700 passengers, handling 824 Air Mobility Command, and coalition and commercial aircraft across two ground operations areas while coordinating operations with multiple agencies. The JTF-PO delivered 530 mine–resistant, ambush–protected, all-terrain vehicles to US counterterrorism and counterinsurgency forces at nine forward operating bases in Northern Afghanistan, providing vital, life-saving equipment for the warfighter and ensuring the security of the northern distribution network.

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CHAPTER V
SEALIFT MISSIONS AND OPERATIONS

"It's all about chartering the direct course to deliver military power in the quickest, most efficient, most businesslike manner wherever and whenever the nation calls on us to serve. The vast majority of how we get things done is through sealift."

General Norton A. Schwartz, United States Air Force
Commander, United States Transportation Command, March 2007

1. General

a. Strategic sealift ships include government-owned and militarily useful merchant-type ships made available to DOD to execute the sealift requirements of the DTS during military operations. Also referred to as "common-user sealift," these ships are used in the transportation of DOD cargoes from one seaport to another or to a location at sea in the OA pending a decision to move the embarked cargo ashore. The sealift force is composed of ships from some or all of the following sources:

(1) Active government-owned or government-controlled ships.

(2) Government-owned reserve or inactive ships.

(3) US privately owned and US flag-operated commercial ships.

(4) US privately owned, foreign-flag commercial ships.

(5) Foreign-owned and -operated commercial ships.

b. Large-deployment sealift operations are conducted in three roles comprising the sealift trident as depicted in Figure V-1. All three portions of the sealift trident are distinct entities, and removing any segment of the trident limits the JFC's full range of sealift support options. Organic and nonorganic are the two primary categories of sealift available to support these three roles. Organic vessels are owned by the USG or are under long-term charter (lease) to a government entity. Nonorganic ships include all commercial vessels not owned or leased by the USG or provided to the USG through an Allied agreement. This includes vessels that are US-flagged and foreign-owned and -flagged.

(1) PREPO afloat is made up of ships from MSC's afloat pre-positioning force (APF), which consists of two maritime pre-positioning ships squadrons (MPSRONs), Army afloat pre-positioning stocks-3 ships, DLA, and Air Force ships. The flexibility inherent in the APF provides the CCDRs various force options to use when developing COAs to accomplish assigned tasks. While pre-positioned equipment and supplies aboard APF ships are tailored to support the joint forces' combat operations, these same ships can be used to support other types of joint military operations. On a limited basis, selected capabilities—such as production, storage, and distribution of potable water; rations; shelter; bulk fuel operations; engineer support; and transportation services—may be provided to the HN, other USG departments and agencies, or international organizations

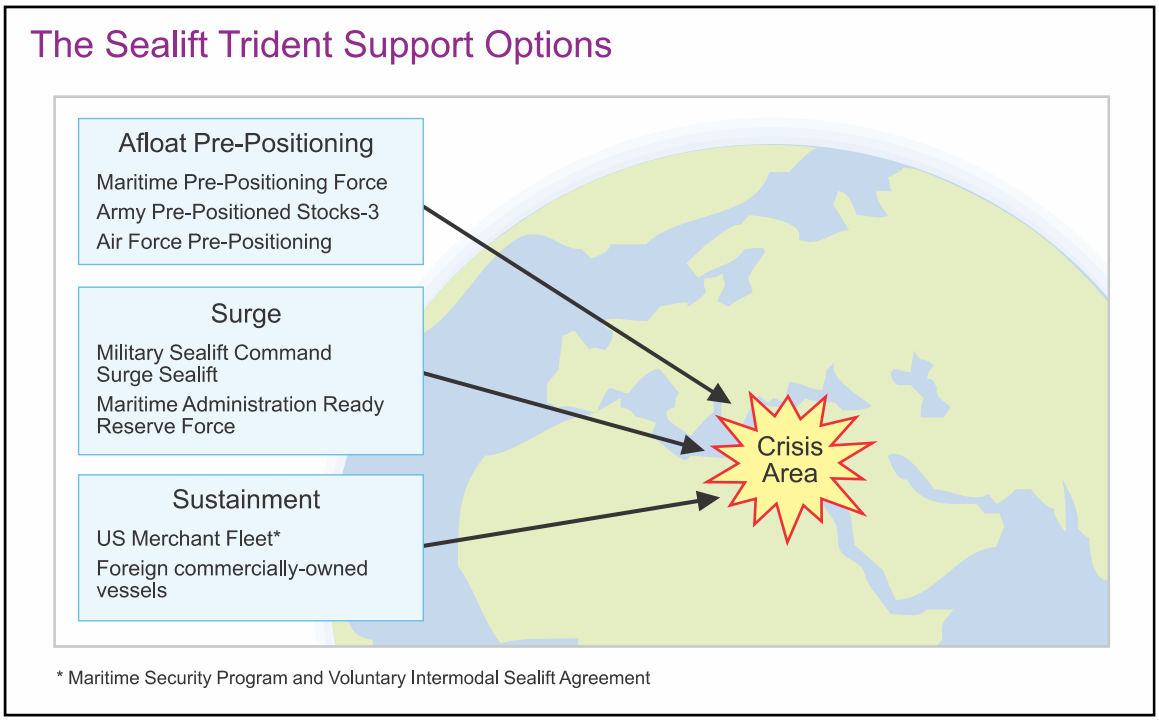


Figure V-1. The Sealift Trident Support Options

to support foreign humanitarian assistance. When providing support to foreign nations, it is important to comply with applicable laws, regulations, and reporting procedures. Elements of the APF may be temporarily moved to take up position close to a potential employment area, to signal national resolve during an evolving crisis and/or enhance the timely delivery of supplies and equipment upon the decision to deploy a decisive force.

(2) Surge sealift includes all organic ships not assigned to the APF but may also include nonorganic ships if readily available. Subcategories of surge sealift include the MSC-controlled fleet as well as the MARAD RRF. CDRUSTRANSCOM exercises COCOM of the surge sealift fleet. The MSC-controlled fleet are organic (US-owned and long-term leased) ships, primarily large, medium-speed roll-on/roll-off (LMSR) types, which operate under MSC. The MARAD RRF ships are owned and managed by MARAD primarily for DOD use during critical surge periods. The MARAD RRF consists of a mix of RO/RO vessels, FSSs, heavy-lift ships, aviation support ships, crane ships, and an offshore petroleum discharge system (OPDS) tanker. When MARAD RRF ships are activated, the COMSC exercises OPCON. A robust and responsive surge fleet is a critical element of the US national security strategy. The ability to move forces and military equipment enables the United States to defend and promote vital interests anywhere in the world. For surge sealift, MSC first looks to the US market and then the foreign market to charter ships as mandated by law, regulation, and US policy. If no suitable ships are available, government-owned ships may be activated. Sealift delivers the heavy combat power and accompanying supplies to facilitate the worldwide deployment of predominantly CONUS-based forces.

SEALIFT SUPPORT TO JOINT OPERATIONS

While most troops flew to the war (Operation IRAQI FREEDOM [2003-2011]), 91 percent of deployment cargo traveled by sea. This figure compares favorably with the first Gulf War [02 August 1990-28 February 1991], when sealift accounted for 88 percent of total dry cargo. Between 1 January and 1 May 2003, 118 ships completed 141 downloads, delivering 811,169 short tons/16,342,573 square feet of unit cargo.

Of the 118 ships used, 36 belonged to the Military Sealift Command (MSC), 31 to the Maritime Administration Ready Reserve Force (MARAD RRF), 12 were US-flag commercial ships, and 39 were foreign-flag commercial vessels. The majority of vessels (99) were roll-on/roll-off ships, the best for carrying most kinds of unit equipment because of their large size, ease of loading and unloading, and good speed. Thirty-five of these came from MSC, 30 from the MARAD RRF, and 34 from the commercial sector (7 US-flag and 27 foreign-flag). Thanks to adequate volunteerism by commercial US-flag carriers, US Transportation Command did not activate any ships under the Voluntary Intermodal Sealift Agreement (VISA). MSC chartered 11 VISA ships, and Military Surface Deployment and Distribution Command used 37 in liner service.

Various Sources

(3) Sustainment typically utilizes liner service, composed mostly of containerships, to deliver large quantities of resupply to support forward-deployed forces.

(4) When planning for the eventual transition from conflict to stability, post-conflict, and competition, JFCs should carefully consider the importance of sealift in supporting redeployment/retrograde of materials back to the United States for reconstitution or to another theater for subsequent operations. JFCs should anticipate that the majority of equipment transported during redeployment will be via the US merchant fleet.

2. Vessel Acquisition and Activation Programs

The vast majority of vessels required to support military operations are not under DOD control during peacetime (i.e., nonorganic). To acquire these ships, some type of lease agreements or operating agreements must be executed between DOD and the owning and controlling organizations (either commercial firms or US and allied government agencies). In maritime terminology, leasing agreements are known as charters. Although their terms and conditions differ widely, charters are of three basic types: bareboat, voyage, and time.

a. A **bareboat charter** is a contract whereby the charterer gets the rights and obligations of ownership. The fixed duration of this type of charter is generally for a number of years. The charterer pays in advance for the entire ship on a monthly or semiannual basis even if the vessel is laid up or carries less than its full capacity. Under a bareboat charter, the charterer assumes total responsibility for operating the ship, including manning, provisioning, maintenance, navigation, and logistic support.

b. Under a **voyage charter,** the charterer specifies type of vessel required, cargo to be loaded, and locations/times the vessel is to load and discharge. The charterer pays for either part or all of the carrying capacity of the vessel, usually in one payment. The ship owner provides vessel, crew, fuel, stores, and commits the vessel to being capable of making a given speed.

c. A **time charter** is a contract for the service of the vessel (i.e., its cargo carrying ability) for an agreed period of time. As with a bareboat charter, the charterer pays for the entire carrying capacity of the vessel on a per-day rate, even if the vessel is laid up or carries less than its full capacity. Additionally, the charterer determines where the ship goes and what it carries, while paying for port charges and the vessel's fuel. Time and voyage charters are most commonly used to acquire sealift shipping to meet short-term military requirements. The sealift acquisition and activation decision flow is detailed in Figure V-2.

3. Government-Owned/-Controlled Assets

a. Government-owned ships (primarily RO/RO) is the most readily available source for quickly deploying large quantities of unit equipment. However, the number of ships in this category is limited, and they would primarily support the very early stages of a major military deployment.

b. **Active Vessels.** The active government-owned (organic) and government-controlled sealift forces are MSC common-user point-to-point ships and the APF. Common-user ships are government-owned or under long-term time charter to MSC and are employed in providing sealift to all DOD agencies on a nondedicated basis. In a crisis, these ships may be immediately diverted to a SPOE to load deploying military cargo. However, MSC common-user shipping involved in peacetime sealift missions may be distant from CONUS SPOEs and thus may not be immediately available. The ships of the APF will execute their missions at the time and place required by the CCDR/JFC under whose command the specific ships have been placed.

c. **Inactive Vessels.** Inactive or reserve sealift assets consist of organic ships (typically Navy-owned) maintained by MSC in ROS and organic ships (typically DOT-owned) maintained by MARAD in ROS for use in a contingency. The latter are known as the MARAD RRF and its larger set, the National Defense Reserve Fleet (NDRF). With very few exceptions, title to MARAD RRF and other NDRF ships are vested in MARAD's parent organization, DOT. The exceptions are NDRF vessels owned by the Services that have been placed in MARAD custody at NDRF sites but which the owning Service can unilaterally activate whenever required. The MARAD RRF is a quick-response subset of the NDRF, but because MARAD RRF activation procedures differ from those for the NDRF, they are addressed separately. To ensure the readiness of both the MSC inactive ROS fleet, as well as the inactive ships of the MARAD RRF, USTRANSCOM conducts periodic no-notice vessel activations under their sealift exercise programs.

(1) **ROS and Full Operational Status (FOS)**

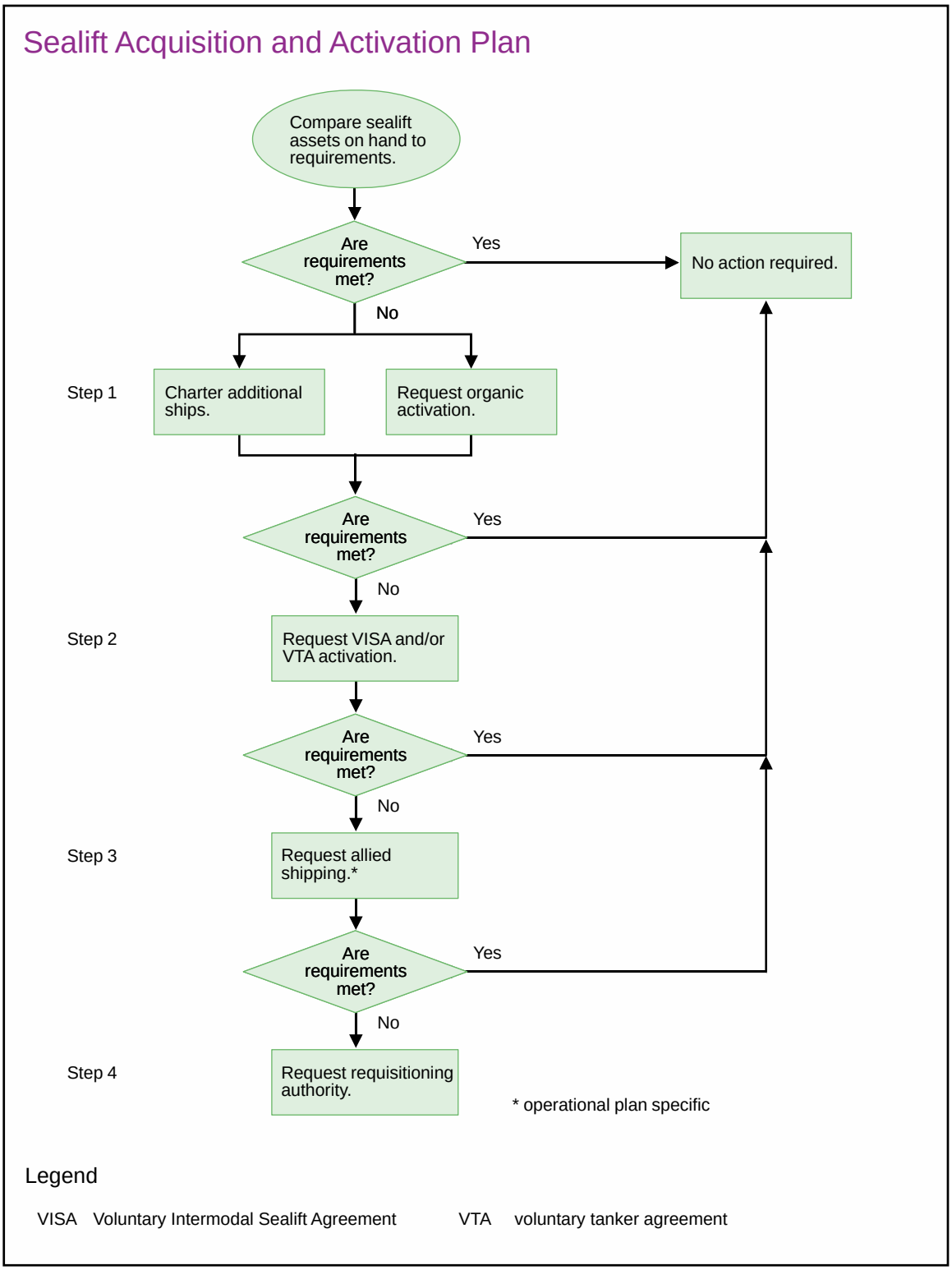


Figure V-2. Sealift Acquisition and Activation Plan

(a) Ships in ROS are manned by small crews commensurate with the number of days designated for activation and at minimum expense consistent with potential employment.

(b) When activated for operations, ships are brought up to FOS to perform all assigned missions and are fully stored/provisioned with a complete complement of licensed and unlicensed crew members.

(c) The time required to return the ship to FOS is designated in days. Thus, a given ship could be placed in ROS-5 [the condition of readiness in terms of calendar days required to attain full operating status is designated by the numeral following the acronym ROS] or ROS-10, where the number indicates in days the amount of effort required to make the ship ready for tasking. MARAD and MSC ensure ships of the MARAD RRF and surge sealift fleet respectively can be brought to FOS in the time specified. Individual operating companies contracted to MARAD and MSC help to ensure the readiness of the MARAD RRF and surge sealift fleet.

(2) **MARAD RRF and Surge Sealift Ships.** The MARAD RRF is composed of ships maintained by MARAD in various stages of readiness for use when called upon. Individual MARAD RRF ships are operated by operating companies IAW a ship manager contract awarded by MARAD. MSC's surge sealift ships are maintained in ROS by commercial companies. Both surge sealift and MARAD RRF ships can be activated to support validated requirements when missions cannot be satisfied by US-flagged merchant vessels operating in commercial service. The MARAD RRF is a significant source of government-owned early deployment sealift in terms of both the number of ships and overall cargo-carrying capability. MARAD RRF vessels in ROS are subject to regular surveys and maintenance periods to prevent deterioration. The entire MARAD RRF fleet is berthed on the three CONUS seacoasts. These ships are activated pursuant to presidential action or as otherwise authorized under law.

(a) **Status.** The number of ships in the MARAD RRF and their composition change frequently. Refer to the MARAD Website (http://www.maritime.dot.gov/) for the most current information about the MARAD RRF.

(b) **Ship Maintenance and Upgrade.** MARAD RRF ships are maintained and upgraded by MARAD using funds appropriated by the USN.

(c) **Activation Process.** CDRUSTRANSCOM directs the activation of MARAD RRF for contingency deployments or for sealift exercise programs. Upon activation, the ships are committed to CDRUSTRANSCOM and are normally under the OPCON of COMSC. The ships are manned, provisioned, operated, and maintained by commercial shipping companies under agreements with MARAD. The activation process is shown in Figure V-3. Those vessels in the highest state of readiness, ROS-5, are maintained by a civilian crew of nine-to-ten mariners, while vessels in 10-day status are manned with five mariners. When activated to support the Armed Forces of the United States, operating authority is transferred to MSC. To ensure readiness, USTRANSCOM regularly exercises no-notice activation trials to test the vessels under operating conditions.

1. **MARAD RRF Activation Procedures.** When a ship is selected for activation, MARAD will initiate the process of crewing and certifying the ship ready for sea and then tender the vessel to COMSC for OPCON. Under some circumstances, a sea

Ready Reserve Force Activation Process for Contingency Deployment of Common-User Ships

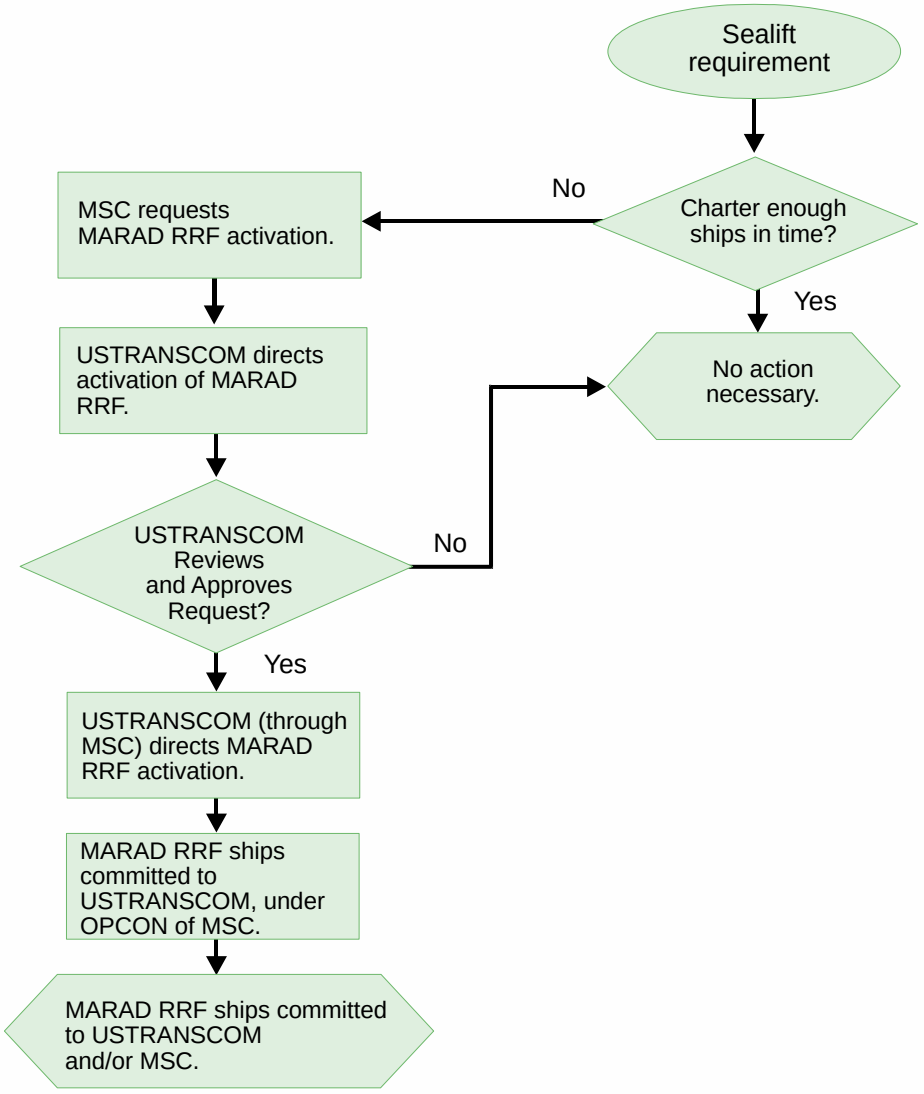


Figure V-3. Ready Reserve Force Activation Process for Contingency Deployment of Common-User Ships

trial may be required to demonstrate readiness. MARAD RRF ships may be activated for several reasons:

a. To meet lift requirements for contingencies or exercises

b. To test the ship's ability to meet required activation timelines. This unannounced testing process is only ordered by CDRUSTRANSCOM.

c. For routine maintenance or scheduled upkeep

2. **Surge Sealift Activation Procedures.** Surge sealift ships are activated by their operating companies when directed by COMSC. Individual operating companies are responsible to self-certify a ship's readiness for tasking. Like vessels of the MARAD RRF, MSC surge sealift ships are eligible for activation by CDRUSTRANSCOM.

(3) **NDRF.** The NDRF (excluding its quick-response subset, the MARAD RRF) contains older dry cargo ships, tankers, troop transports, and other types of vessels (tugs and other such types) that are maintained in MARAD custody under minimal preservation. Current planning considers NDRF militarily useful retention vessels as strategic sealift resources suitable for use as replacements for combat losses, for sustainment, and for economic support. Because of their relatively low level of readiness, NDRF ships would require a minimum of 30 to 120 days to activate. They are berthed at MARAD RRF sites in the James River (Fort Eustis), Virginia; Beaumont, Texas; and Suisun Bay, California.

(a) The NDRF consists of approximately 89 ships, of which 46 are in the MARAD RRF. The NDRF is expected to decline further as the disposal of older ships continues. Because the number and type of ships in the MARAD RRF and NDRF can change, refer to the MARAD Website (http://www.maritime.dot.gov) for the most up-to-date numbers.

(b) **Activation Process.** NDRF ships are made available to DOD whenever the President proclaims that the security of the nation makes it advisable or during any national emergency declared by proclamation of the President. A flow diagram of the activation process is shown in Figure V-4.

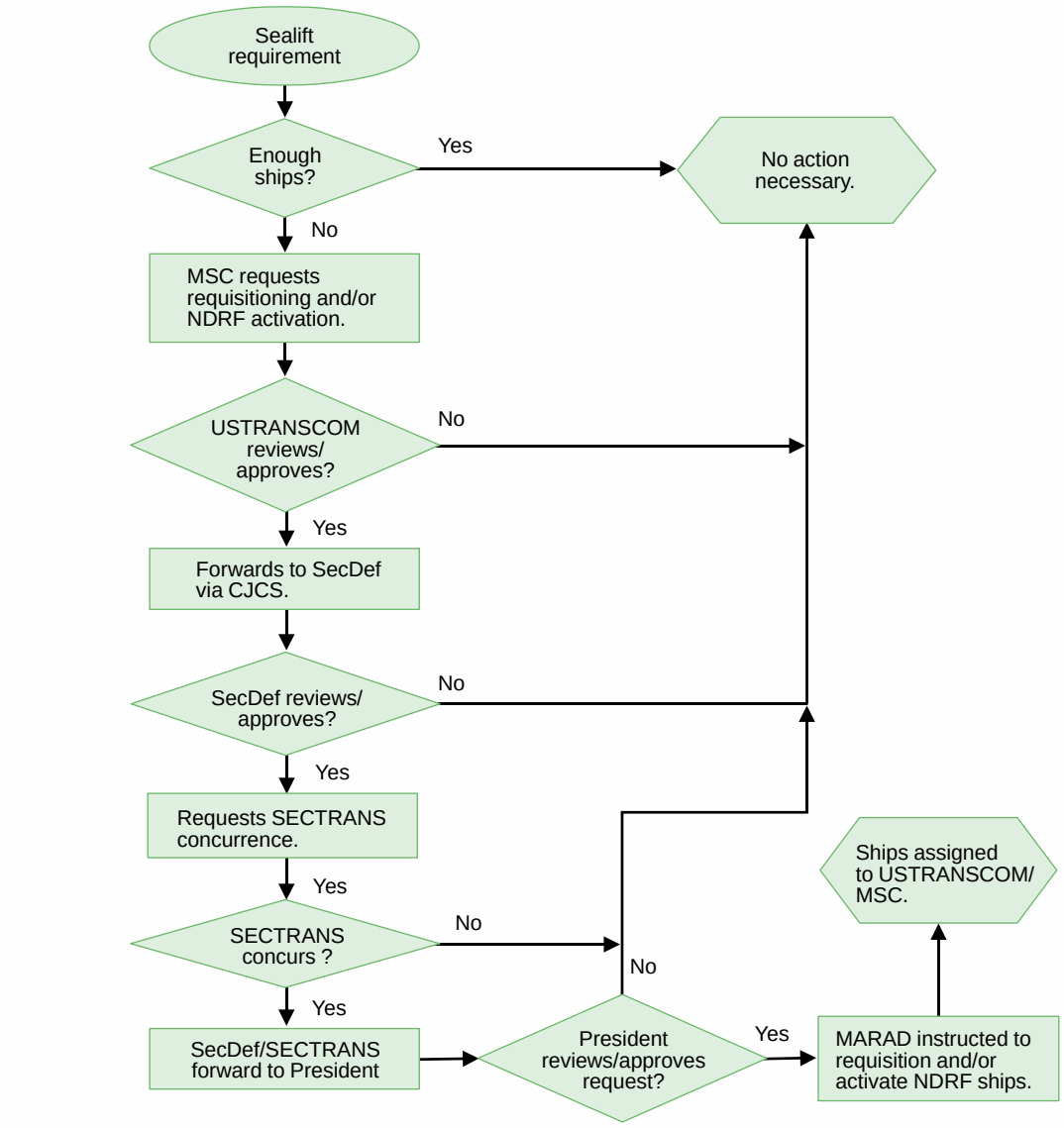
4. Commercial Ships

a. Commercial ships will likely be required to fill sealift requirements in major crisis situations requiring large amounts of logistics support. DOD can obtain commercial shipping from the following sources: US-flag commercial charters and liner service; foreign-owned charters and liner service ships, used IAW existing laws and policies; ships/capacity committed to VISA/VTA; and militarily useful US-flag ships which are subject to requisitioning. Additionally, shipping may be obtained through allied agreements.

b. **US-Flag Ships.** The US-flag fleet is generally considered to be the commercial shipping sector most responsive to DOD requirements. DOD can acquire US-flag ships by six methods: commercial charters, liner service, VISA, MSP, VTA, and requisitioning shipping.

(1) **Commercial Charter.** MSC frequently charters US- and foreign-flag ships during peacetime to provide additional sealift capacity. Chartering is a routine commercial

National Defense Reserve Fleet Activation/ Ship Requisition Process



Legend

CJCS	Chairman of the Joint Chiefs of Staff	SecDef	Secretary of Defense
MARAD	Maritime Administration	SECTRANS	Secretary of Transportation
MSC	Military Sealift Command	USTRANSCOM	United States Transportation Command
NDRF	National Defense Reserve Fleet		

Figure V-4. National Defense Reserve Fleet Activation/Ship Requisition Process

transaction that can be accomplished in as little as two days. However, all chartered ships may not be immediately available in time of crisis. Depending on ship location, the time required to arrive at the designated loading port may be as much as 30 days.

(2) **Liner Service.** A significant amount of military cargo moves on US-flag liner ships. Liner operators are carriers operating ships on scheduled sailings over established trade routes. These operators ensure that, over select high volume trade lanes, a minimum capacity will be available on their vessels for DOD cargo. Military cargo offered by SDDC to liner carriers can be offered in full shiploads or less-than-full shiploads. The latter method helps share space with cargo shipped by other government organizations or private-sector businesses. SDDC's liner contracts are used to move a wide variety of cargo, both breakbulk and containers, during peace and during war. Once a theater has matured, liner service is often used for regular force rotations and supplying forces with sustainment. SDDC's liner contracts can also include accessorial services such as freight packing, satellite tracking, and delivery. SDDC contracts contain uniform terms and conditions for transporting military cargo and are competitively solicited. Rates are proposed in response to requests for proposals and are finalized by negotiation between USTRANSCOM, SDDC, and the interested carriers.

(3) **VISA.** VISA is a vital component of the sealift mobilization program. It is an intermodal capacity-oriented program vice a ship-by-ship-oriented program. All major US-flag carriers are enrolled in VISA. This constitutes more than 90 percent of the US-flag dry cargo fleet. The worldwide intermodal system provided by these carriers provides extensive and flexible capabilities to DOD. The types of ships enrolled in the VISA program include containerships, RO/RO ships, combination RO/RO and containerships, heavy-lift ships, breakbulk ships, and tugs and barges. In exchange for enrollment in VISA, vessel operators receive preference for DOD peacetime cargo. VISA is activated upon approval of SecDef and provides for the staged, time-phased availability of participants shipping/systems through pre-negotiated contracts between the government and participants. At each stage of VISA, participants are committed to provide DOD with a percentage of their total capacity. The intent is to minimize commercial interruption, as well as provide DOD assured access. When VISA is activated, US-flag carriers are authorized to replace their US-flag vessel capacity with foreign-flag capacity to maintain a consistent level of service.

(a) Stage I may be activated by CDRUSTRANSCOM with the approval of SecDef when voluntary capacity commitments are insufficient to meet DOD requirements. When Stage I assets are exhausted, Stage II may be activated.

(b) CDRUSTRANSCOM may recommend the activation of Stage III to SecDef when capacity requirements from Stage I and II are insufficient and other shipping services are not available. At Stage III, SecDef requests the Secretary of Transportation (SECTRANS) to allocate capacity based on DOD requirements. Stage III capacity requirements are coordinated between USTRANSCOM and MARAD. Once ship capacity is identified, MARAD provides ship information to USTRANSCOM. After USTRANSCOM activates the vessel, MSC accepts it and assumes OPCON and the ship information is passed to the MSC area command, complete with berth availability. This happens before the unit reaches the load port, and if timed correctly, the unit moves into the seaport by road or rail and proceeds to the piers where the ship is prepared to receive unit cargo and/or personnel.

(c) A Joint Planning Advisory Group is central to the successful implementation of VISA and is composed of representatives from USTRANSCOM, SDDC, MSC, DLA, MARAD, and intermodal industrial transportation representatives. The Joint Planning Advisory Group provides USTRANSCOM and its components with recommendations as to how best to resolve critical transportation issues during periods of heavy demand or crisis. The decision flow for activation of VISA is shown in Figure V-5.

(4) **MSP.** The MSP requires SECTRANS to, in consultation with SecDef, establish a fleet of active, commercially viable, militarily useful, privately owned vessels to meet national defense and other security requirements. Authorized through 2025, the MSP slows the downward trend in militarily useful US-flag ships and ensures militarily useful ships are available to DOD during war or national emergency. Participating operators must make their ships and commercial transportation resources available upon request by SecDef during times of war or national emergency. The MSP provides military access to vessels and vessel capacity, as well as a total global, intermodal transportation network. This network includes not only vessels but logistics management services, infrastructure, terminal facilities, and US-citizen merchant mariners to crew the government-owned/-controlled and commercial fleets. Participants are required to commit 100 percent of their capacity either to VISA or VTA.

(5) **VTA.** The VTA, established by MARAD, provides for tanker owners to voluntarily make their vessels available to satisfy DOD needs.

(a) The VTA is activated by USTRANSCOM with approval of SecDef when it is determined that:

1. A tanker capacity emergency affects the national defense.

2. Defense requirements cannot be met by chartering.

3. Defense requirements can be met more efficiently by activating the VTA than by requisitioning ships.

(b) Tanker capacity provided under the VTA is for point-to-point transport of military petroleum, oils, and lubricants (POL). The agreement is designed to meet contingency or war requirements, not to deal with shortages of capacity in connection with peacetime resupply operations. The decision flow for activating the VTA is the same as that shown in Figure V-5.

(6) **Requisitioning Shipping.** SECTRANS is authorized to requisition any vessel which is majority-owned by US citizens, whether registered under the US or a foreign flag, whenever the President proclaims that the security of the nation makes it advisable or during any national emergency declared by proclamation of the President (and/or concurrent resolution of the Congress). The requisitioning process is essentially the same as that for activating the NDRF, shown in Figure V-4.

c. **Foreign-Flag Ships**

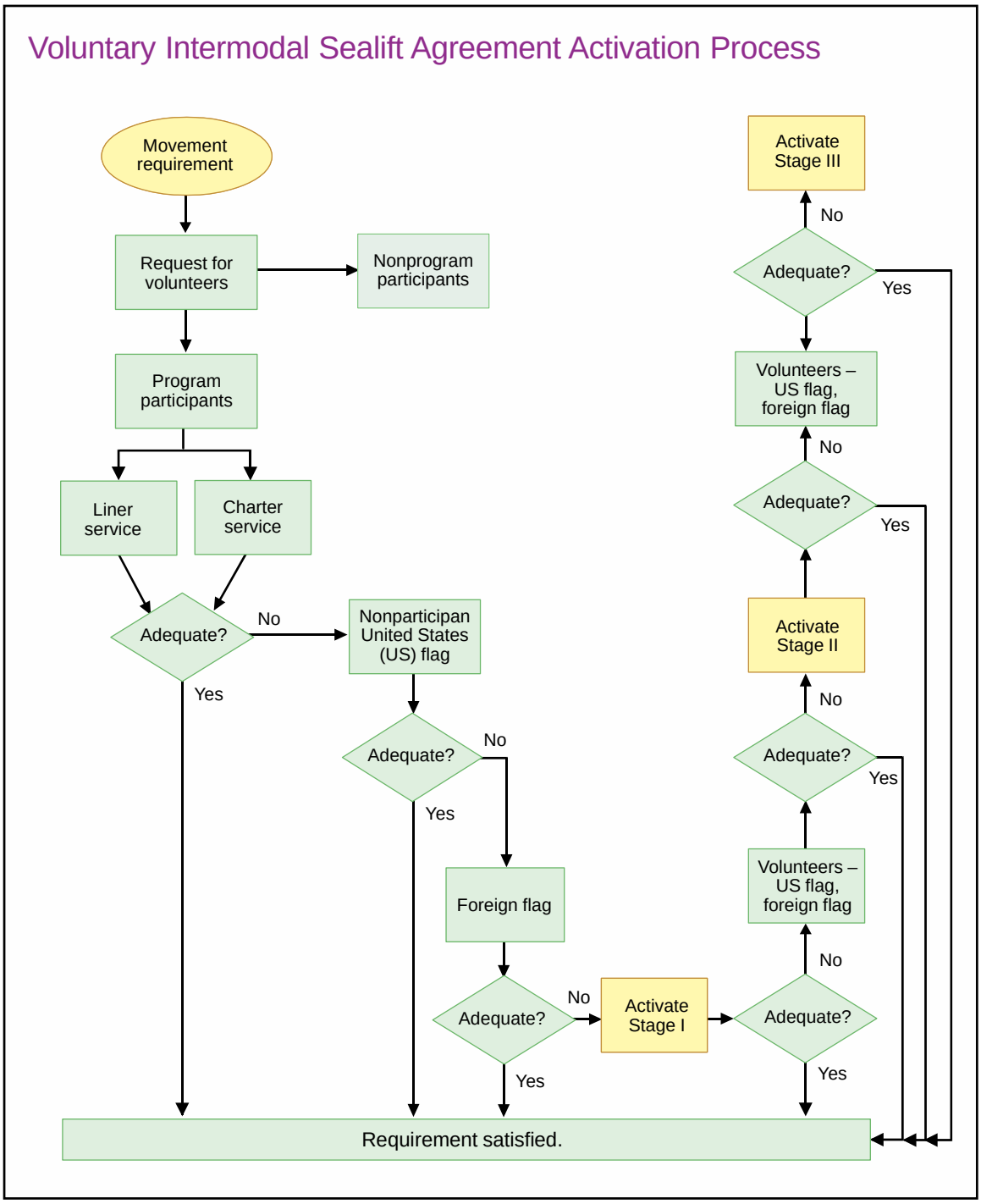


Figure V-5. Voluntary Intermodal Sealift Agreement Activation Process

(1) As a general rule, foreign-owned and -operated commercial shipping may be chartered through commercial charter during a contingency when organic and US-flag or nonorganic assets are unavailable or insufficient. National Security Directive-28, *National Security Directive on Sealift*, prohibits planning for the chartering of foreign-flag vessels; however, there are some standing shipping agreements with US allies that can be used without violating this policy. Country-to-country shipping agreements can be arranged on

short notice dependent on the crisis. The United States benefited from other nation-provided shipping during Operation DESERT STORM.

(2) **DOD Acquisition Procedures.** After it has been determined that there is not sufficient voluntary US-flag sealift capacity to meet requirements, foreign-flag ships may be chartered. The procedure is the same as for US-flag ships. Diplomatic considerations may apply when chartering foreign-flag ships.

5. Surge Sealift Assets

The conventional sealift assets discussed above cannot meet all strategic sealift and sealift-related requirements alone. These additional requirements include the rapid deployment of heavy Army combat units and Marine Corps forces, containership discharge where port facilities are damaged or nonexistent, expeditionary aviation maintenance support, medical care for expeditionary forces, and pre-positioning of combat and support equipment and supplies. To meet these requirements, various sealift ship are used, as shown in Figure V-6 and discussed in more detail in Appendix A, "Ship Types."

6. Sealift Execution

a. **C2.** Common-user shipping is under the COCOM of CDRUSTRANSCOM with OPCON executed by COMSC. When required, protection, escort, and security are provided to USTRANSCOM by the Navy component commander or the joint force maritime component commander (JFMCC) in the respective OA in which the vessel is operating. To carry out this responsibility, COMSC or MSC area commanders give TACON to the respective JFMCCs. This command relationship requires close coordination between MSC and the JFMCCs to enable adequate protection of common-user shipping while transiting areas of hostile activity.

(1) **Sealift Communications.** Communications systems are critical to the flow of orders and directives from the sealift commander to subordinates and to their status reports to the commander. However, the procedures for communicating with the sealift force are unique to military operations because of the heavy reliance on commercial

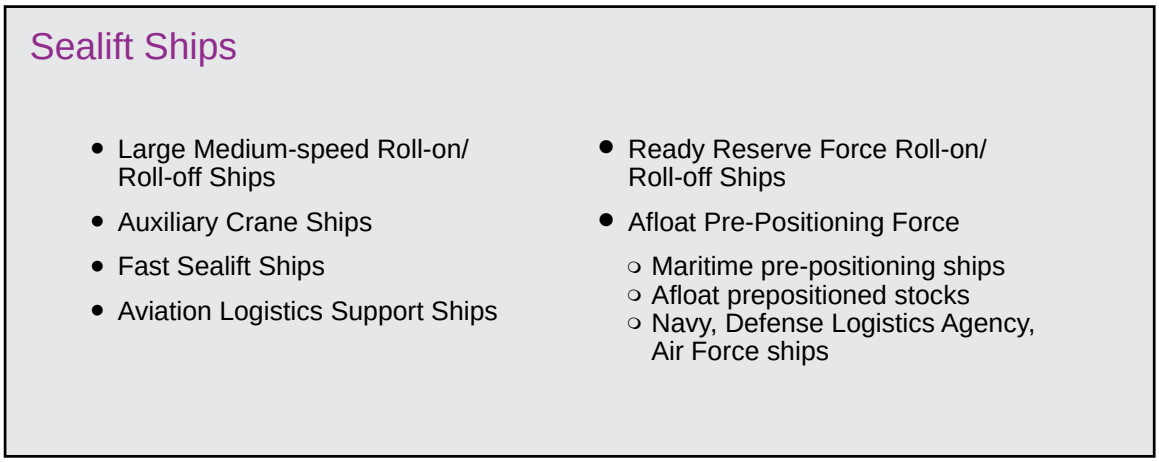


Figure V-6. Sealift Ships

maritime systems. Commercial sealift communications are extremely vulnerable to jamming and deception. Communications among the military organizations involved in C2 of sealift take place through the normal military communication channels.

(a) **Merchant Ship Communications Capabilities.** Long-range communications capabilities in strategic sealift ships range from advanced military communications and online cryptographic systems on some military-owned sealift ships to the satellite-aided Global Maritime Distress and Safety System and conventional high-frequency and single-side band voice capabilities. The vast majority of US-owned merchant ships that would make up the sealift force are equipped with commercial satellite systems that provide continuous voice and data communications capability. Those ships not equipped with commercial satellite systems communicate with other ships and organizations ashore through commercial coastal radio stations, using conventional high-frequency voice communications. Merchant ships may be provided limited capability for handling classified information through use of MSC-provided secure telephone unit systems that can be interfaced with satellite communications systems.

(b) **Interface Between Commercial and Military Communications Systems.** For naval commands to communicate rapidly and effectively with merchant ships, interfaces between commercial and military satellite communications systems have been established. However, in most circumstances requiring direct communication between military authorities and merchant ships, unclassified messages will be transmitted via commercial channels. This requires understanding of the communications capabilities of each ship and established procedures for voice communications and delivery of message traffic to the ship. MSC will ensure the following information can be transmitted from organic sealift vessels during periods of activation until deactivation, via secure and/or nonsecure means (as applicable): ship departure and arrival times, position location while under way, casualty reports, situation reports, sailing orders, Defense Readiness Reporting System reporting, movement reports, and force protection direction/orders.

(c) **Military sealift tactical advisors** may be temporarily assigned aboard civilian-manned ships to provide the ship's master with advice on naval matters, particularly on tactical maneuvering and communications. This Navy officer brings secure communications equipment and tactical publications and guidance that may not already be on the ship. In essence, the tactical advisor promotes fleet interoperability and integration for commercial ships conducting military missions.

(2) **OPORDs and Reports.** To ensure assigned sealift missions are accomplished efficiently and with the desired results, operational C2 is implemented through a system that relies on standard orders and reports. These orders and reports are designed to provide a complete, accurate, and timely flow of essential information in both directions in the chain of command.

b. **Sealift Ship Support.** In general, merchant ships will be logistically supported by their owner and/or operators within the terms of their charters or other agreements when the ships are using commercial seaports for loading and discharge of military cargo. Merchant ships are normally provisioned at the beginning of every voyage with 60 to 90

days of consumable items. This will usually be sufficient for a ship to make the round-trip between SPOE and SPOD, including the required cargo discharge time at the SPOD. The exception to this is that merchant ships under MSC OPCON are generally supplied with fuel from military sources. This may take the form of direct payment for fuel from commercial sources or actual transfer of military fuels to merchant ships. The latter is most likely to occur in the supported CCDR's AOR as the ships deliver their cargoes after a long voyage. On shorter voyages the ships may be able to return without refueling. Other in-theater logistic support to merchant ships will usually be limited to assistance in treatment and repatriation of sick or injured crew members; expediting the arrival of crew replacements, high-priority spare parts, and mail delivery; and arranging or providing tugs, pilots, and nautical charts and publications when required. Should vessel repairs be required in-theater, commercial facilities, when available, should be used due to their familiarity with merchant ships' requirements and to keep naval repair facilities available to naval combatants.

c. **Support to Military Engagement, Security Cooperation Activities, and Foreign Humanitarian Assistance**

(1) **Military Engagement and Security Cooperation.** Sealift can provide support to a combatant command campaign plan (CCP) in a variety of ways. Sealift plays an essential role in developing capabilities, interoperability, and cooperation among US allies and coalition partners during a host of multinational exercises such as COBRA GOLD in Thailand, TALISMAN SABRE in Australia, and AFRICAN LION in Morocco. In many cases, the value of sealift support extends well beyond strictly military considerations. Besides delivering significant medical capabilities in response to natural and man-made disasters, MSC hospital ships routinely complete humanitarian and civic assistance and CCP mission deployments. In providing humanitarian and civic assistance, these ships are often able to operate where combatants or support vessels would not be permitted for diplomatic reasons.

(2) **Foreign Humanitarian Assistance.** Frequently, sealift support to foreign humanitarian assistance plays an important, if not the primary, role in preserving life in the immediate aftermath of a natural or man-made disaster. Generally, this relief is of limited duration or scope and is designed to support and supplement HN or civil authority efforts, in coordination with a US lead federal agency, until a transition of relief efforts to HN, coalition partners, or nongovernmental organizations can be completed. Sealift support in these situations may be tailored to the particular situation, depending on the unique relief requirements.

Refer to JP 3-29, Foreign Humanitarian Assistance, *for additional information on foreign humanitarian assistance.*

7. Intermodal Operations

a. Intermodal operations provide flexibility by incorporating various combinations of sealift, airlift, rail, and trucking operations to facilitate rapid, efficient cargo movement. In the context of commercial shipping, intermodal operations or systems refer primarily to the

SEALIFT SUPPORT OF FOREIGN HUMANITARIAN ASSISTANCE DURING OPERATION TOMODACHI

On March 11, 2011, Japan was struck by a 9.0-magnitude earthquake, which created a subsequent tsunami. The United States Navy (USN) responded to the humanitarian crisis with Operation TOMODACHI. This earthquake was the largest in Japan's recorded history and one of the deadliest in the world. The resulting tsunami caused a dam failure in Fukushima leading to the largest nuclear incident since Chernobyl when it severed the Fukushima Daichi nuclear power plant's power grid connections, causing overheating. Over the course of the operation, 16 USN warships and 8 Military Sealift Command (MSC) ships and various aircraft provided assistance and disaster relief efforts in and around the affected coastal areas of Japan for approximately 30 days. MSC ships were conducting relief supply transfer to responding USN ships. Units from all US Services assisted with a multitude of capabilities ranging from medical, communications, relief supply, and civil engineering. One of the remarkable aspects of Operation TOMODACHI was the speed of initial response by USN vessels because of close proximity of USN and MSC vessels to the affected region, the US 7th Fleet's ordering force pre-positioning the day of the disaster, no major damage to naval base infrastructure in the region, the higher level of logistical readiness maintained by forward-deployed USN forces, and the mutually positive relationship existing between the United States and Japanese governments.

SOURCE: Adapted from *An Analysis of United States Naval Participation in Operation TOMADACHI: Humanitarian and Disaster Relief in Tsunami-Stricken Japanese Mainland, Naval Postgraduate School MBA Professional Report,* June 2012

efficient interchange of standardized shipping containers between ocean and land carriers, sophisticated systems of container handling and storage in marine terminals, or container freight stations and computerized tracking of shipments. The advantages include savings in transit time and delivered cost and the arrival of perishables in better condition because of reduced transit times. The availability of this commercial infrastructure for military use increases the efficiency of moving large numbers of containers.

b. **Theater Support Planning.** During execution planning, it is particularly important to consider the theater's existing transportation infrastructure and capabilities to make maximum use of its potential for intermodal operations. Selecting SPODs and/or APODs close to major highway systems, rail networks, and civilian logistic support is important, even where modern, sophisticated intermodal infrastructures do not exist.

c. **Sustaining the Force.** Sustaining the force is as important as deploying it. For this reason, intermodal operations must be planned in depth to consider transportation infrastructure damage. Planning must also take into account the need for additional manpower, vehicles, and other logistic support over time, especially during redeployment.

Initial HNS may eventually be withdrawn as that nation attempts to reestablish normal commercial transportation operations in support of its own economy.

For additional information on intermodal containerization, refer to JP 4-09, Distribution Operations.

8. Amphibious and Expeditionary Operations

a. An amphibious force consists of an amphibious task force (ATF) and landing force (LF), together with other forces that are trained, organized, and equipped for amphibious operations. An ATF is a Navy task organization formed to conduct amphibious operations. An LF is a Marine Corps or Army task organization formed to conduct amphibious operations. Navy elements in an ATF include various types and classes of ships, to include combatant and strategic sealift and support units from various warfare specialties. The LF normally comprises a command element, aviation combat element (ACE), ground combat element, and a logistic combat element. The LF is divided into two echelons, assault echelons and the assault follow-on echelon (AFOE). The assault echelon is the element of an LF that conducts the initial assault in the amphibious objective area. The assault echelon is those troops, vehicles, aircraft, equipment, and supplies required to commence operations. The assault echelon is normally embarked in amphibious warfare ships. The AFOE is composed of that echelon of assault troops, vehicles, aircraft, equipment, and supplies which, though not needed to initiate operations, are required to support and sustain the assault. The AFOE is normally required in the objective area no later than five days after commencement of the assault landing. Portions of the AFOE may be required ashore sooner because of the tactical situation. As part of an LF, an AFOE is normally embarked in amphibious warfare ships. Due to limitations in the number of amphibious warfare ships, an AFOE is normally embarked in strategic sealift shipping. However, if an AFOE is embarked on strategic sealift, berthing of an AFOE is often a problem, as most sealift ships do not have berthing for an LF. An integral part of the ATF is the Navy support element (NSE). The NSE consists of cargo-handling, beach, and lighterage groups equipped and trained to discharge ships in stream and pierside.

For additional information on the employment of sealift in amphibious operations, refer to JP 3-02, Amphibious Operations. *For additional information on the NSE, refer to NTTP 3-02.3M/Marine Corps Warfighting Publication (MCWP) 3-32,* Maritime Prepositioning Forces Operations.

b. **Employment of AFOE.** The AFOE is not to be confused with Marine Corps units deployed by MPF, which will be addressed below. When an ATF is being formed by the supported CCDR, USTRANSCOM allocates cargo space for that AFOE mission. These ships are then integrated into the Navy component commander's operations and incorporated with the forces of the commander, ATF. Sealift ships are positioned and loaded at port facilities, generally where amphibious force cargo and personnel can be most expeditiously and efficiently loaded to meet AFOE mission requirements. Loadout of AFOE ships is nearly simultaneous with the loadout of assault echelon ships. The AFOE deploys IAW the commander, ATF's, and amphibious OPLAN. The AFOE needs to be discharged swiftly, safely, and in sufficient time to support the LF. When a

USTRANSCOM-provided ship of the AFOE has discharged its cargo, it may be returned to the USTRANSCOM common-user shipping pool only if authorized by the supported CCDR.

c. **Transfer of APF to Common-User Status.** Strategic sealift in the APF will normally be transferred to common-user status when released by the supported CCDR. However, it may be necessary for the supported CCDR to retain afloat ships for theater support to meet specific operational requirements. This is called withhold shipping. A prime example arose during Operations DESERT SHIELD and DESERT STORM when suitable AFOE ships could not be acquired for a Marine expeditionary brigade. Upon arrival in-theater, MPF ships were retained by the CCDR for use as AFOE ships. When the APF ships are transferred to the common-user pool, their support is coordinated through USTRANSCOM and MSC in the same manner as all other common-user ships (see Figure V-7).

d. **LOTS.** Strategic sealift requires an over-the-shore cargo discharge capability. This is known as LOTS. LOTS operations are conducted over unimproved shorelines or in ports that are inaccessible to deep draft ships or that are damaged or otherwise inadequate. Both the Army and the Navy maintain an organic capability to perform LOTS missions in support of their respective Service missions and when directed, to support the CCDR's requirement for a capability to perform joint logistics over-the-shore (JLOTS). Although not required, the CCDR or subordinate commander can request a JTF-PO (SPOD) capability to complement JLOTS by providing efficient and transparent movement of cargo from the high-water mark to a forward distribution node. JTF-PO facilitates and enables follow-on theater distribution.

(1) **Navy LOTS.** The major USN system for in-stream cargo off-load and discharge is the cargo offload and discharge system which has two major subsystems: for dry cargo (the cargo off-loading and transfer system) and for liquid cargo (the off-shore bulk fuel system). The equipment and facilities include lighterage, causeway ferries, floating piers, and the elevated causeway system. Liquid cargo off-load is supported by the amphibious bulk liquid transfer system and OPDS.

(2) **Army LOTS** equipment includes harbormaster C2 centers; self-deploying watercraft; lighterage (including modular causeway systems, logistics support vessels, causeway ferries, floating piers, Trident piers, and RO/RO discharge facilities); small harbor and large ocean-going tugs; barge derricks; terminal service MHE; shore-based water storage systems; and the inland petroleum distribution system, which includes a tactical petroleum terminal.

Additional information on JLOTS operations is available in JP 4-01.6, Joint Logistics Over-the-Shore.

e. **JTF-PO (SPOD).** Although all Services have the organic capability to fully support theater opening functions, traditional Service port opening/operating forces may not be sufficient in situations that require rapid response or joint integration. JTF-PO gives the supported commander rapid port opening capability, both air and sea, to facilitate crisis

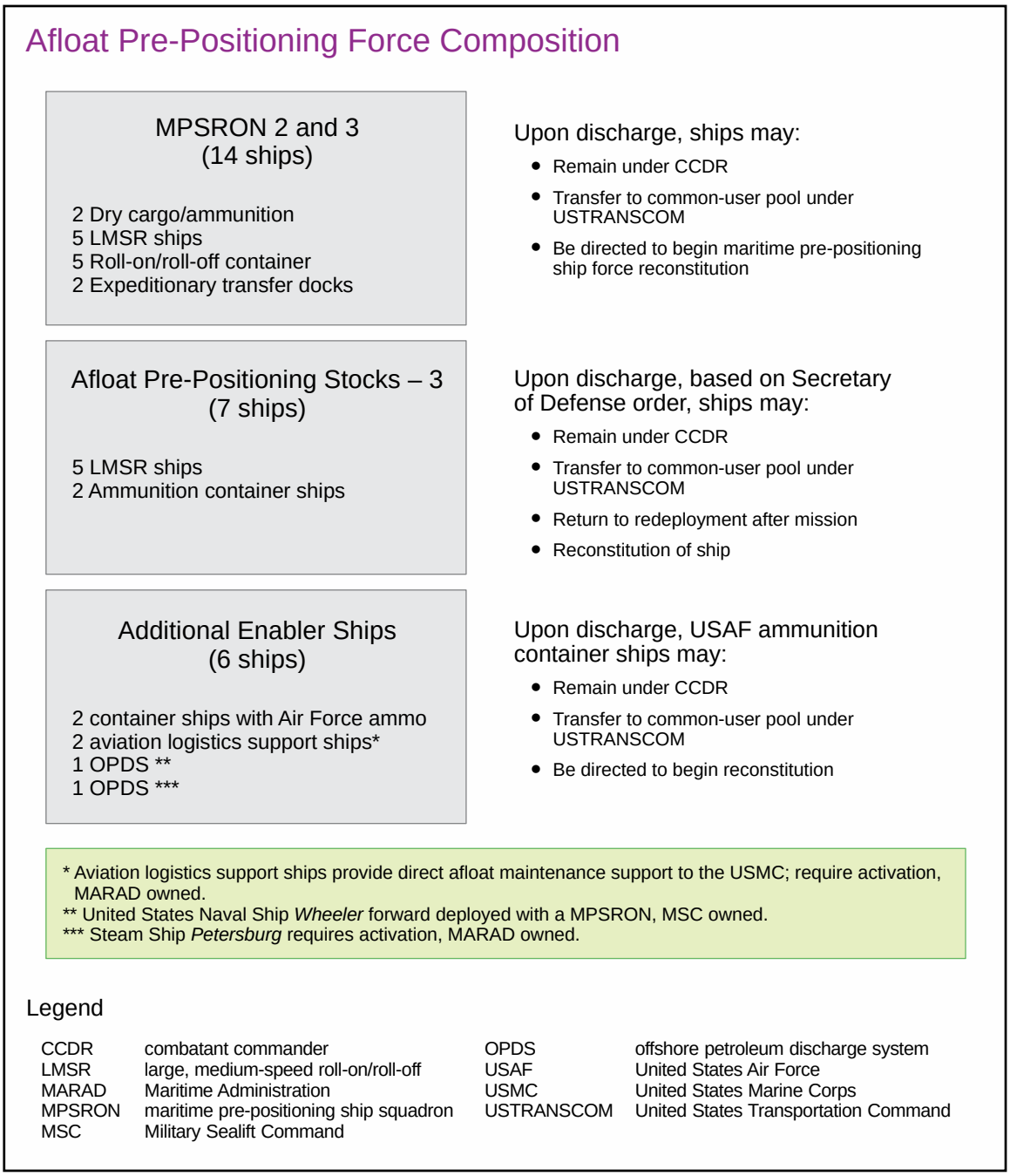


Figure V-7. Afloat Pre-Positioning Force Composition

response in austere environments and is designed to be in place in advance of a deployment of forces, sustainment, or humanitarian relief supplies. JTF-PO (SPOD) can rapidly clear, establish, and initially operate a seaport for debarkation, cargo handling, and movement operations to a forward distribution node. The JTF-PO (SPOD) comprises both Army and Navy elements. SDDC provides a rapid port opening element while MSC provides MSC marine transportation specialists and expeditionary port unit members from Navy Reserve units. If required, a DLA rapid deployment team may also be tasked to deploy with the rest of the JTF-PO element. The JTF-PO concept of operations includes immediate

deployment of a small MSC joint assessment team to survey the port's condition, determine required JTF-PO resources, and provide subject matter expertise for port assessment. When deployed, CDRUSTRANSCOM maintains OPCON delegated to SDDC, unless otherwise directed. SPOD forces are ready to deploy within 36 hours and are designed to operate for 45-60 days and then redeploy or be relieved by follow-on forces.

For additional information on JTF-PO, see JP 4-09, Distribution Operations; *and USTRANSCOM Instruction 10-27, Volume 2,* Joint Task Force Port Opening.

f. **Seabasing.** Seabasing is the deployment, assembly, command, projection, reconstitution, sustainment, and reemployment of joint power from the sea without reliance on land bases within the OA (see Figure V-8).

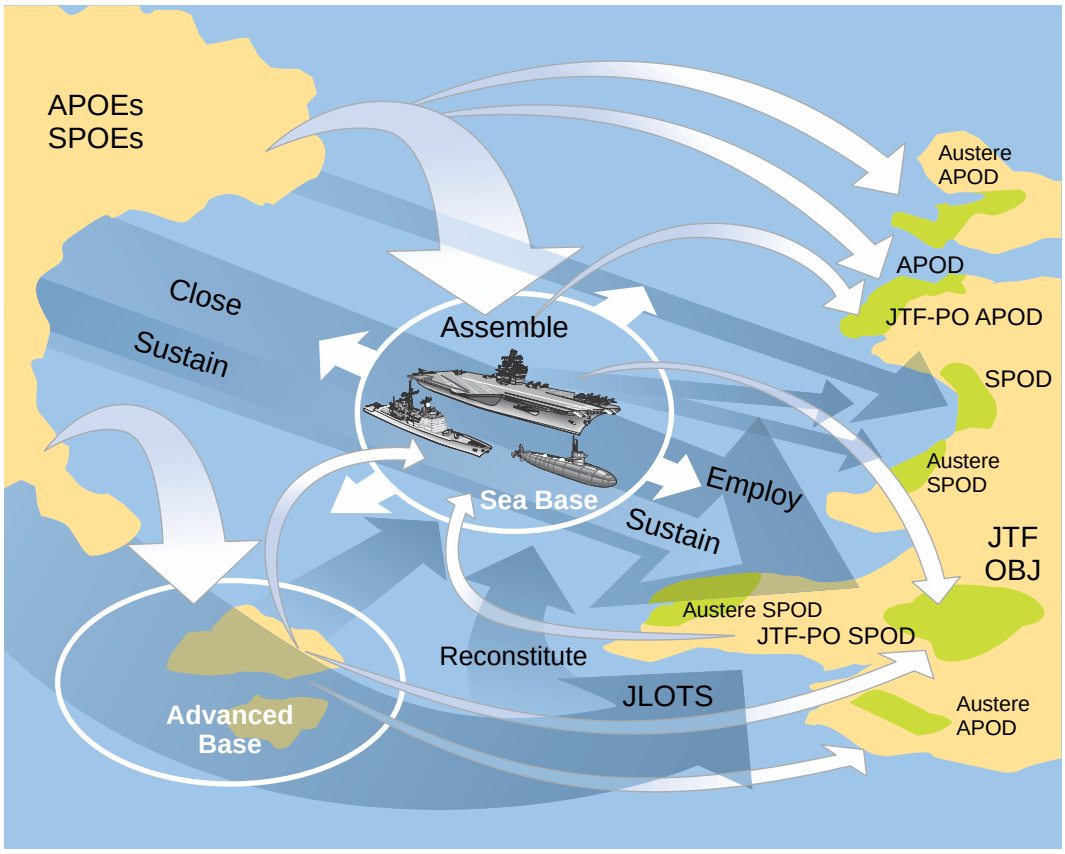
(1) **Principles.** The basic principles of joint seabasing are to use the sea as maneuver space; leverage forward presence and unified action; protect joint force operations; provide scalable, responsive joint power projection; sustain joint force operations from the sea; expand access options and reduce dependence on land bases; and create uncertainty for our enemies. Recent advances include the development of expeditionary seabasing ships, which provide a facility for maritime forces to use as an intermediate logistics site where none exist.

(2) **Considerations.** The smooth flow of supplies and personnel to the sea base and into the OA will be one of the determining factors in a successful seabasing operation. This flow has many variables, including the type and size of the operation being supported from the sea base; the amount of air and sealift available; the distance from the advanced base/advance logistic support site/forward logistic site to the sea base and OA; the infrastructure available (e.g., airfields, port facilities, material-handling equipment) in or out of the OA; C2 of air and sealift; coordination and prioritization of supply, equipment, and personnel movement; and the personnel required to execute this transportation and distribution function.

(3) **Operations.** Currently, sealift support to the sea base is normally accomplished indirectly by delivery of supplies to an intermediate staging base. From the intermediate staging base, Navy Combat Logistics Force vessels operated by MSC transload materiel to the sea base. However, seabasing relies heavily on airlift to bring in troops and high priority parts to sustain the operation.

For additional information on seabasing, refer to Navy Warfare Publication (NWP) 3-62M/MCWP 13-10, Seabasing.

Seabasing



Legend

APOD	aerial port of debarkation	JTF-PO	joint task force-port opening
APOE	aerial port of embarkation	SPOD	seaport of debarkation
JLOTS	joint logistics over-the-shore	SPOE	seaport of embarkation
JTF OBJ	joint task force objective		

Figure V-8. Seabasing

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CHAPTER VI
PLANNING

"In preparing for battle I have always found that plans are useless, but planning is indispensable."

Dwight D. Eisenhower (1890-1969)

1. General

a. Strategic mobility forces can accomplish a variety of missions. The joint planning process determines the mobility requirements, which drive mobility planning. The joint planning process is used by the joint planning and execution community (JPEC) to plan and execute mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations. Successful movements start with well-defined requirements from the users and may involve significant upfront coordination with lift providers. In short, mobility planning is based on the requirements and the lift planning process is a joint effort between the user and provider that requires lead time and diligence. Therefore, effective mission planning includes an intelligent application of sound tactics learned from previous conflicts, operational evaluations, training exercises, tactics development programs, and threat analysis. Feasibility studies are usually done at the CCMD but may be delegated as low as unit-level planners. Planners provide commanders with accurate assessments during all phases of planning. Most contingency operations will involve joint forces and should integrate the user in mission planning. In addition, planners should include intelligence, C2, escort, security/defense, Service LNOs, weather, cargo handlers and inspectors, and maintenance. The degree of integration will influence the success of the mission. Sharing critical information, especially operational intelligence, between all players clarifies objectives, develops alternatives, and assesses risk. The following references may be useful to the planner: CJCSM 3122 series, *Joint Operation Planning and Execution System (JOPES)*; JP 3-0, *Joint Operations*; JP 3-35, *Deployment and Redeployment Operations*; and JP 5-0, *Joint Planning*.

b. Employment continues until the operation is terminated by proper authority or is completed, including redeployment of forces and materiel and retrograde of equipment. Effective acquisition, scheduling, and C2 of mobility forces facilitates timely delivery of units and supplies essential to the successful conduct of the operation. A complete understanding of the organizational responsibilities for airlift and sealift employment is, therefore, essential.

c. Execution starts with the President and SecDef decision to exercise the military option for resolution of a crisis. Acting on the authority and direction of SecDef, the CJCS issues an execute order (EXORD) that directs the supported CCDR to carry out the OPORD. The supported CCDR then issues EXORDs to subordinate and supporting commanders directing them to execute their supporting OPORDs. During this phase, changes to the OPORD may be necessary due to strategic, operational, tactical, or intelligence considerations; force and non-unit cargo availability; availability of airlift and

sealift; CONUS transportation system throughput capabilities; and SPOE and/or SPOD throughput capabilities.

d. **Execution Requirements.** Because the OPORD will probably require adjustment as it is executed, ongoing refinement and adjustment of deployment activities are required. At the time of execution, the OPORD TPFDD should include, at a minimum, properly identified combat, combat support, and combat service support units.

(1) **USTRANSCOM Responsibilities.** Throughout the execution of an OPORD, USTRANSCOM develops, monitors, and adjusts transportation schedules with the supported CCDR. USTRANSCOM reports the progress of the deployment to the supported CCDR and CJCS and identifies lift shortfalls or other transportation-related problems accordingly.

(2) **Supported CCDR Responsibilities.** The supported CCDR or subordinate commander should ensure USTRANSCOM and its transportation component commands clearly understand transport requirements. While developing requirements and priorities, the supported commander coordinates with USTRANSCOM to manage strategic movement. The supported commander has a wide range of movement control options available to enable a seamless intertheater-intratheater leg interface. A theater-joint transportation board may be established, or subordinate JFCs or Service component commanders may be directed to carry out their own movement control. However, to facilitate a fully coordinated and responsive transportation system, the CCDR may assign responsibility for theater transportation movement control to the JDDOC. JDDOCs are established for each CCMD, as required. The premise behind the JDDOC capability is that theater expertise is combined with national-level strategic knowledge and reachback capability within the CCMD's command structure. The JDDOC accomplishes theater joint movement responsibilities for any potential logistic organizational structure as directed by the CCDR. The CCDR also establishes ports of debarkation support activities. These include the A/DACG, port support activity, and any subordinate movement control organization.

For additional information on the JDDOC and movement control, see JP 4-09, Distribution Operations.

(3) **Supporting CCDR Responsibilities.** Certain situations may require that one CCDR support another CCDR. This support may range from the deployment of forces to the provision of sustainment. Regardless of the mission, the supporting commander should establish a movement control system consistent with USTRANSCOM's system. A JDDOC, with supporting component movement cells, manages all moves and assures compliance with the supported CCDR's priorities. For deployments to another theater, the supporting CCDR establishes port of embarkation activities. These include the A/DACG, port support activity, and movement control organization.

SECTION A. UNIVERSAL MOBILITY PLANNING FACTORS

2. Intelligence

Intelligence is fundamental to effective planning and operations security (OPSEC). The intelligence planning effort must be focused to ensure it is responsive to the commander's requirements and the requirements of the subordinate units. To ensure the intelligence effort addresses the commander's needs and is fully synchronized with operations, it is imperative the appropriate intelligence staff elements be fully involved in the operations planning process from the outset. Pertinent information must be analyzed concerning the operational environment pertaining to potential threats. Information shortfalls and the commander's critical information requirements must be identified early, converted into intelligence requirements, and submitted for collection or production as requests for information. A joint intelligence preparation of the operational environment (JIPOE) effort should be initiated early to identify and assess possible enemy COA that could threaten friendly air mobility operations. Effective intelligence planning provides commanders at all levels with the intelligence they need to apply their available forces wisely, efficiently, and effectively.

For more information regarding the criticality of intelligence support, see JP 2-0, Joint Intelligence.

3. Vulnerabilities

Strategic mobility forces are vulnerable during all phases of operations, at origin, en route to ports of embarkation/ports of debarkation, and forward airfields and seaports. Mission planning must include a thorough analysis of vulnerabilities throughout all phases of operations. Military and civilian routes into civilian airfields/ports and off-base billeting of crews create unique vulnerabilities that must be addressed with local policy authorities. SPOEs/SPODs are particularly vulnerable to various types of attacks and force protection specialists from the joint force and USCG work to ensure all strategic mobility vulnerabilities are considered.

For additional information on force protection in a theater of operations, see JP 3-10, Joint Security Operations in Theater.

4. Force Visibility

a. Force visibility reports the current and accurate status of forces at the strategic and operational level, their current mission, future missions, location, mission priority, and readiness status. Force visibility provides information on the location, operational tempo, assets, and sustainment requirements of a force as part of an overall capability for a CCDR. Force visibility integrates operations and logistics information, facilitates global force management, and enhances the capability of the entire JPEC to adapt rapidly to unforeseen events to respond and ensure capability delivery. Force visibility enhances situational awareness and is required to support force sourcing, allocation, assignment of forces; force position; sustainment forecasting and delivery; and forecasting for future force requirements.

b. **AV** is a subcomponent of force visibility. AV provides the capability to determine the identity, location, and status of personnel, equipment, and supplies by class of supply, nomenclature, and unit. It provides visibility over equipment maintenance and retrograde actions. It also includes the capability to act upon that information to improve the overall performance of DOD logistic practices supporting operations. DOD-wide AV requires horizontal integration of supply and transportation activities and one-time data capture. AV includes in-process, in-storage, and ITV. The function of performing AV is a shared responsibility among deploying forces, supporting commands and agencies, USTRANSCOM, and the supported CCDR. The DLA (as executive agent for Integrated Data Environment AV) and USTRANSCOM (with IGC) work collaboratively to ensure supply and in-transit data is shared and fused, resulting in a complete seamless picture for end-users.

c. **ITV** refers to the capability to track the identity, status, and location of DOD units, non-unit cargo (excluding bulk POL), passengers, and personal property from origin to consignee or destination during military operations as part of AV.

For more information on force visibility, AV, and ITV, see JP 3-35, Deployment and Redeployment Operations, *and JP 4-09,* Distribution Operations.

5. Diplomatic Clearances

Diplomatic clearances are crucial planning considerations that include movement of cargo over international boundaries, aircraft overflight and landing rights, communications connection approval, personnel visas, and other entry requirements. No TPFDD, deployment order (DEPORD) flow, or sustainment channel mission can occur without appropriate clearances obtained in advance. Without these clearances, the ability to enable rapid global mobility can be halted. Diplomatic clearances impact footprint, throughput, force protection, and ultimately, operational success. Diplomatic overflight and landing clearances are key to establishing an efficient air bridge for deployment of TPFDD forces and sustainment. The diplomatic clearances are processed IAW DODD 4500.54E, *DOD Foreign Clearance Program (FCP).*

6. Sustainment

a. Operations and logistics are most effectively integrated as part of a collaborative planning process that includes subordinate component commands, supporting commands, and force providers. Equally important with planning is the active integration of sustainment movements from point of origin to point of need to ensure seamless delivery and retrograde of sustainment cargo. USTRANSCOM develops integrated distribution route structures based on the needs of the CCDRs to ensure timely performance through all segments of the joint distribution pipeline.

b. Historically, demand for items increases faster than the supply system can provide, and special management actions might become necessary. Anticipating the demand for sustainment movements requires a shared situational awareness and close collaboration between staffs during development of future plans. Sustainment movements are usually a

combination of push and pull resupply that requires a flexible means of modulating airlift capacity to respond to varying demand patterns and TDD parameters.

c. A key consideration during sustainment planning is the modal balance among airlift, sealift, and surface movements. USTRANSCOM supports routine sustainment operations through scheduled airlift operations such as channel service and scheduled sealift via commercial liner service. Levels of transportation service for sustainment movements are often predicated on rules and transportation priorities applied during requisition or acquisition of supplies. However, there is no substitute for active planning to ensure sustainment movements are supported with the appropriate transportation mode to efficiently meet the needs of the CCMDs, Service components, and other supported organizations.

d. Routine sustainment planning usually assumes that user requirements and general air and ground security situations provide some flexibility in the actual delivery times of specific loads.

e. Combat sustainment operations reinforce or resupply units engaged in combat and permit timely return of reparable parts, often in critically short supply, to designated repair points. Once delivered to the combat zone, an inserted force may be totally dependent upon subsequent airlift operations for sustainment, movement, withdrawal, redeployment, or AE of casualties. Combat sustainment planning usually assumes that operational requirements and assessed threats provide little or no flexibility in the delivery times, locations, and load configurations. Combat requirements and cargo handling limitations at forward operating locations drive flight schedules and determine whether palletized cargo can be handled effectively. Operational effectiveness is the primary objective, and the efficient use of aircraft and support resources is secondary.

f. Sustainment should be planned to utilize backhaul capacity. Depending on theater and user priorities, typical backhaul loads might include redeploying forces, friendly evacuees, detainees, and excess or repairable material. However, reset and reconstitution of military forces may drive scheduled retrograde movements with the same operational urgency and TDD objectives as other sustainment movements.

Additional information concerning sustainment can be found in JP 4-0, Joint Logistics, *and JP 4-09,* Distribution Operations.

7. Environmental Considerations

a. Mobility support operations should be planned and conducted with appropriate consideration of their effect on the environment IAW applicable US and HN agreements, environmental laws, policies, and regulations.

b. A separate annex or appendix for ensuring proper attention is given to environmental considerations should be included in each OPORD and OPLAN. The annex or appendix should address the transport of oil and hazardous substances; fuel transfers; shipboard waste disposal, including hazardous waste, hazardous materials transport, and medical and infectious waste disposal; and natural and cultural resources protection

including marine mammals, oil and hazardous substance spills prevention and controls, and water pollution prevention. In addition to coordination with other staff elements (e.g., medical and legal), coordination with other DOD agencies (e.g., DLA) and other USG departments (e.g., Department of Energy) may also be necessary.

c. Requirements related to environmental considerations may be found in numerous sources, which may include but are not limited to the following:

(1) Provisions of US environmental law applicable overseas.

(2) EXORDs.

(3) DOD issuances.

(4) HN laws.

(5) Status-of-forces agreements.

(6) International treaties, protocols, and conventions.

For additional information on environmental considerations, refer to JP 3-34, Joint Engineer Operations.

8. Multinational Planning Considerations

a. The joint planner should consider complementary multinational capabilities during COA development. However, this capability should be balanced against the potential for competition for US transportation assets to deliver those multinational units into the theater.

b. In planning for multinational operations, the joint planner should be aware of the legal considerations in providing or receiving logistics support from multinational partners. The Foreign Assistance Act, the Arms Export Control Act, acquisition and cross-servicing agreement authority, the Federal Property and Administrative Services Act of 1949 (as amended), the Fly America Act, and the Cargo Preference Acts all address the degree of support the United States can provide to or receive from other nations. In addition, specific legislative language contained in DOD authorization or appropriation acts may limit US ability to receive and/or provide logistic support from and/or to allies. The joint planner should include the legal advisor in all stages of multinational operations planning and execution for legal compliance.

c. The legal considerations of multinational support notwithstanding, sealift and airlift operations are an integral part of most multinational planning efforts. US component commanders and multinational force commanders should provide highly trained liaison staffs to facilitate integration, coordination, and synchronization of air operations. It is important to ensure all planners understand the capabilities and limitations each nation brings to the fight. In the event no established multinational guidance is available, planning considerations for multinational air operations should resemble those for joint operations.

For additional information, refer to JP 3-16, Multinational Operations.

9. Information Activity Planning

a. Information is integral to the successful planning and execution of air mobility and sealift operations. Integrating information into planning requires early and detailed JIPOE and must be an integral part of, not an addition to, the overall planning effort.

b. **Electromagnetic Warfare (EW).** EW threat planning is critical to mobility operations. The threat of directed energy (e.g., lasers and high-power microwave) weapons, as well as the enemy's infrared and traditional electromagnetic attack radio frequency energy capabilities to mobility operations, is increasing in sophistication and effectiveness at an accelerating rate. Mobility forces also require enhanced situational awareness, an intermediate range of capabilities (e.g., nonlethal systems such as dazzlers; various force protection actions; directed energy weapons) to survive in the electromagnetic environment, and the accompanying enemy systems that may engage those mobility forces. Effective countermeasures reduce the lethality of threats encountered when avoidance is not possible or unknown. Mobility operations are increasingly threatened by emerging EW capabilities. Air and sealift crews must plan to use alternative procedures to overcome communications and GPS jamming or spoofing capabilities. Enemies may attempt to employ EW to disrupt operations at ports of debarkation.

c. **Cyberspace Operations.** Based on mission classification, air mobility and sealift planners conduct mission planning on both classified and unclassified C2 systems using the SECRET Internet Protocol Router Network and Non-classified Internet Protocol Router Network. Because adversaries and enemies can threaten our information sources and information systems at multiple locations simultaneously, cyberspace security and cyberspace defense actions are essential. Service components ensure that the air mobility and sealift communities comply with established DOD Chief Information Officer and United States Cyber Command cybersecurity policy and guidance to provide well-defined boundaries with protection mechanisms (e.g., firewalls, system interoperability solutions, data management zones, and intrusion detection and protection systems) that monitor and detect unauthorized internal and external activity.

SECTION B. AIR MOBILITY-SPECIFIC PLANNING CONSIDERATIONS

10. General

a. Users and providers should carefully plan and coordinate air mobility. Its flexibility and vulnerability make it a responsive, but potentially costly, asset to use. However, logistic support requirements and dependence on ground equipment for some operations may constrain air mobility's inherent flexibility. Properly organized, trained, and equipped air mobility forces can usually be shifted rapidly between missions and terminals. Modern aircraft offer increased mission flexibility because they can be quickly reconfigured for a variety of loads (palletized and unpalletized cargo, rolling stock, passengers, AE, and airdrop loads) or different types of in-flight refueling missions. For more information on

planning factors for various airlift assets, refer to the DTR Website at https://www.ustranscom.mil/dtr.

b. Effective and well-coordinated allocation of air mobility assets requires careful prioritization, which provides planners with essential information that enables flexibility when faced with changing mission requirements. However, airlift may be the only choice to ensure the success of high-priority missions when land infrastructure is not well developed, time is critical, or distances are long. Planners and operators should weigh the immediate needs of the user against the overall requirements and priorities of the JFC.

(1) In general, air mobility forces should not be tasked for movements when sealift and land forces meet requirements.

(2) Planners should prepare cargo and validate requirements for movement by regularly scheduled airlift channels to reduce pressure on organic airlift.

(3) Planners and operators should plan for commercial airlift to the maximum extent possible and consider commercially compatible airfields when validating requirements, to enable increased movement flexibility.

(4) Planners should also separate passenger and cargo requirements and plan to move outsized cargo, incompatible hazardous materials, and other items that are not compatible with commercial airlift via other means.

c. Minimize movement congestion and vulnerability by reducing the time units and materiel spent en masse at forward terminals and synchronize the positioning of units and material with airlift capability.

d. Maximize the productivity and survivability of airlift aircraft by minimizing aircraft ground times at forward locations.

e. Minimize sortie requirements by repackaging all materiel for air shipment; ensuring combat personnel travel with their maximum authorized individual loads of rations, ammunition, or other personal protective equipment; and splitting units into air-essential and surface movement echelons (whenever possible).

f. Ensure personnel are adequately fed, rested, and protected at en route stops.

g. Deploy personnel and communications equipment necessary to track and report on all air movements.

11. Air Mobility Assessment and Planning Considerations

a. Air mobility assessment is a continuous process that measures the overall effectiveness of employing air mobility capabilities during military operations as the operational environment changes. To support the commander’s decision-making process, assessments are conducted prior to and during strategic mobility operations by determining the effectiveness of the strategy and accompanying plans.

b. Prior to executing air mobility operations, consideration should be given to the following planning factors:

(1) Assessment of airfields, to include capabilities and limitations, and airland facilities available in the departure and arrival areas, particularly those in underdeveloped countries where their status may be questionable. Mobility planners should consider runway characteristics, as well as taxiway, parking, ramp, and cargo handling areas, for operational suitability and determination of MOG.

(2) An airfield's infrastructure also impacts the support GAMSS/JTF-PO forces can provide to the air mobility flow. The hours of operation, climatology, weather services, flight planning support, airfield lighting systems, airfield navigational aids, communications, marshalling/storage areas, and road networks are requirements to consider during planning.

(3) HNS can include diplomatic clearances, airspace access, lodging, food services, water, communications, labor, local transportation, or other types of support.

(4) Availability of fuel at support locations may limit air mobility support. POL planning and requirements should include the amount needed for aircraft and ground equipment. Planners should consider POL storage capacity, fueling system condition and type, and dispense rates, as well as POL acquisition, either from the HN or by resupply. Availability and quality of aircraft fuel is usually a major limiting factor and should, therefore, be the primary focus. At austere locations, AR can lessen the effects of shortages in ground refueling capabilities.

c. Assessments should be conducted continuously during air mobility operations, ensuring the user's requirement is being met IAW established priorities and that air mobility forces are being used efficiently and adapting to changes in the operating tempo or focus. Evaluation tools should include metrics to determine on-time delivery amount of cargo/fuel on- or off-loaded and airdrop delivery precision. Continuous operational assessment that links operational objectives to airlift tasks is the key to ensuring effective employment of air mobility forces. At the same time, economy of force in air mobility operations has a global impact. USTRANSCOM and the MAF, in general, support all Services and government agency operational requirements simultaneously with a finite force to effectively meet the highest priority air mobility needs. Effectiveness is paramount, but economy of force in planning and execution is an essential consideration.

12. Fixed-Wing Versus Rotary-Wing

a. **Fixed-Wing.** The main advantage of fixed-wing aircraft over ground convoys is that they combine speed and the ability to carry cargo over great distances quickly. Planners can employ airlift to reduce the need for ground convoy operations that are vulnerable to enemy attack. The combination of airlift's speed and tactics also enhances aircraft survivability, while its range generally enables basing in relatively secure and logistically easier-to-support rear areas. The main disadvantages are their terminal requirements, which can limit their flexibility, along with their size and fixed location

which increases their vulnerability to ground and air attack. Under most circumstances smaller transports, such as the C-130, are better suited to a sustained intratheater airlift role while larger transports are best suited for the intertheater airlift role.

b. **Rotary-Wing and Tiltrotor.** The Services and US Special Operations Command also operate rotary-wing and tiltrotor aircraft (e.g., UH-1, H-60, V-22, CV-22, CH-47, and CH-53) which possess intrinsic intratheater airlift capabilities and enable them to operate at smaller undeveloped LZs, increases their flexibility, and often reduces ground-transit times for their loads. However, rotary-wing aircraft have restricted payload and range capabilities in relation to fixed-wing counterparts. In addition, their mechanical characteristics give them a high ratio of support man-hours to flight-hours, as well as the ability to base these aircraft at LZs not well-suited to large-scale, sustained, fixed-wing airlift operations. For these reasons, airlift-capable rotary-wing and tiltrotor assets are normally assigned as organic combat and combat support elements to surface combat organizations. Thus, in deciding to employ organic rotary-wing and tiltrotor aircraft to support the intratheater airlift effort, the JFC should consider their vital importance to their assigned organizations, as well as their utility to specific airlift missions. Intratheater airlift requirements that might best be filled by rotary-wing aircraft could include large requirement short-distance operations, such as resupplying ships at sea and unloading ships at undeveloped water terminals, or routine small-payload operations to sites not collocated with LZs, such as daily courier flights to deployed air defense units.

13. Air Mobility Mission Funding Categories

a. Use of air mobility aircraft is funded either through the TWCF or operation and maintenance (O&M) funds. Users reimburse the TWCF upon completion of their movement of requirements by common-user air mobility forces. USTRANSCOM-/AMC-assessed fees are based on the mission type supporting the user's movement. O&M funding occurs via the Service component budget, and generally, there is no charge levied directly against the user. The various air mobility missions are designed and scheduled according to their funding category.

b. **TWCF**

(1) Channel airlift missions use O&M funds to reimburse the TWCF based on weight/cube of cargo and per passenger from APOE to APOD.

(2) SAAM users reimburse TWCF at a SAAM rate based on mission flying time, to include positioning (originating station to required APOE) and repositioning (APOD to originating station) legs.

(3) Contingency mission users reimburse the TWCF based on mission flying time, to include positioning and repositioning when directly supporting an OPORD, disaster, or emergency.

(4) JCS exercise missions users reimburse TWCF based on mission flying time, to include positioning and repositioning.

(5) Intratheater common-user airlift missions flown on USAF airlift aircraft are paid for using contingency funding or the TWCF.

c. **O&M**

(1) AR missions are executed with O&M funds; the cost of fuel transferred is charged to the serviced unit, including on dual-role missions.

(2) Training missions flown for currency and proficiency are paid from O&M funds.

(3) JA/ATT missions are paid by O&M funds that are specifically allocated for joint training that enhances the mutual readiness of both the aviation unit and the users.

(4) Service-organic missions flown by Service-assigned assets (including other USAF MAJCOMs) to meet their own requirements are paid from Service/MAJCOM O&M funding.

(5) OSA missions are paid with O&M.

14. Threats to Air Mobility

a. Air mobility aircraft are vulnerable to air and surface attacks. Similarly, GAMSS units and command elements are organized to provide only for their local security. These vulnerabilities usually mean that optimal air mobility operations are most effective in a permissive environment. However, antiaccess and area denial capabilities of threats should be considered when planning and conducting air mobility operations. These capabilities consist not only of advanced counter-air systems designed to destroy critical air mobile assets but also long-range land attack capabilities that threaten APODs and extend into space and cyberspace. Air mobility planning must begin with threat analysis and may require significant integration with joint/multinational air and ground combat forces for force protection during execution. Ideally, friendly air defense forces should protect large-scale or high-frequency operations. Air mobility forces can operate in uncertain and hostile environments by using aircraft equipped with defensive systems; by using other assets to protect them; or by accepting a possible combination of operational risk, higher loss rates, and reduced efficiency.

b. **Airborne Threats.** Air mobility aircraft are vulnerable to surface-to-surface, surface-to-air, and air-to-air threats because of their inherent significant radar signatures and lack of maneuverability, slower speeds, and, in many instances, limited or no onboard defensive systems. The smaller fixed-wing airlift aircraft and helicopters have lower radar cross sections; however, they suffer equally with limited onboard defensive systems.

c. **Ground Threats.** Air mobility aircraft, aircrews, and support personnel are particularly vulnerable during ground activities. On/offload operations offer large, stationary targets for enemy direct fire and standoff weapons. Commanders and their staffs should consider the employment of expedited ground operations (e.g., engine-running offload and combat offload/onload) to reduce vulnerability to ground threats. Perimeter

and other security measures should be planned and coordinated with those responsible for the area outside the base/airfield compound (e.g., joint security area coordinator). Another option to improve protection of air mobility aircraft and personnel transiting airfields where security is unknown or deemed inadequate is through the use of AMC Phoenix Raven teams. These teams perform close-in aircraft security, advise aircrews on force protection measures, and accomplish airfield assessments to document existing security measures and vulnerabilities. While Phoenix Raven teams should be considered for all missions that transit high-risk areas, they are a limited resource so assigning a fly-away security team may be an alternative if Phoenix Raven teams are unavailable.

d. **Cyberspace Threats.** The air mobility enterprise is dependent on cyberspace to plan, execute, and debrief current and future operations. MAF aircraft and C2 capabilities are reliant upon cyberspace to function. Those dependencies must be secured and defended against enemy action to deny or manipulate critical elements of the global mobility enterprise.

e. **CBRN Threat.** CBRN threats include the capability to employ and the intentional employment of, or intent to employ, weapons or improvised devices to produce CBRN hazards. Use of CBRN weapons against air mobility forces represents a significant threat that may limit options for the deployment, sustainment, and redeployment of forces. The JFC must take every precaution available to prevent the contamination of air mobility aircraft and develop plans to decontaminate aircraft which may become compromised.

(1) In a CBRN-contaminated environment, plan to avoid contaminating air mobility aircraft, thus preserving limited assets for future use. Avoid airland operations into contaminated airfields by airdropping critical supplies and equipment or shifting deliveries to uncontaminated airfields (consider use of austere LZs such as highway landing strips and dirt and/or gravel LZ construction).

(2) When CBRN contamination affects airfield operations, an important contamination control measure available to air mobility planners is use of an exchange zone (EZ). An EZ is a transload base, located beyond the CBRN-threat area, for the transfer of cargo and passengers between uncontaminated (clean) aircraft and previously contaminated (dirty) aircraft. To facilitate this transfer between clean and dirty aircraft, air mobility planners can use split mission-oriented protective posture (MOPP) to divide an APOD into clean and dirty sectors for separation, enabling a MOPP reduction in the uncontaminated sectors. From the EZ, the dirty aircraft shuttle to and from the contaminated APOD to continue TPFDD deliveries. EZ minimizes the number of air mobility aircraft exposed to contaminants and enables continued use of CRAF aircraft when APODs have been contaminated.

Further information regarding EZ, split MOPP, and decontamination is available in the AMC Counter-Chemical, Biological, Radiological, and Nuclear Concept of Operations; *JP 3-11,* Operations in Chemical, Biological, Radiological, and Nuclear Environments; *and JP 3-41,* Chemical, Biological, Radiological, and Nuclear Response.

f. **Emergence of Pandemic Disease.** Regional endemic diseases are characterized by high human-to-human transmissibility and rapid onset of severe morbidity which can threaten military readiness and impose significant constraints on global air mobility operations. If DOS directs a NEO of non-infected individuals from areas abroad experiencing outbreaks, DOD will support with USTRANSCOM and/or other CCMD forces when directed by SecDef to do so. DOD movement of contagious patients requires approval of the specific CCDRs, CDRUSTRANSCOM, and SecDef in consultation with medical authorities. To prevent the spread of disease, the JFC will institute passenger screening measures to ensure patients with known or suspected highly contagious diseases receive treatment in place.

15. Risk Management

a. Every echelon of command planning for and employing air mobility operations must analyze threats and incorporate risk mitigation. At the strategic level, USTRANSCOM and AMC integrate risk-to-mission and risk-to-force considerations via the USTRANSCOM Mission Assurance Working Group and the AMC Threat Working Group which provides coordinated threat and risk analysis in support of military and commercial air mobility operations while coordinating with theater AMDs and other air mobility entities.

b. The AMC/CC defines the acceptable level of risk for all AMC forces which operational planning teams must incorporate into the joint planning process and which mission planners/operators must comply with during air mobility operations. For CCDRs with assigned air mobility forces, the COMAFFOR with OPCON defines the acceptable level of risk. Because vital mitigations are often provided by the supported CCMD, air mobility planners must identify, consider, and advocate for external mitigations at the earliest opportunity and continuously during operations to maximize the survivability and effectiveness of air mobility.

c. During tactical planning and execution, the 618 AOC (TACC), theater AOC (and associated AMD), and unit mission planning cell must have access to timely threat information and commander's guidance/intent to effectively execute the mission. However, air mobility planners should also anticipate the need for operations in a communication-degraded environment and have the requisite skills to evaluate risk in an uncertain or hostile environment.

16. Airlift

a. **General Airlift Mission Planning Considerations.** There are numerous general airlift planning considerations that planners must consider when deciding whether to employ airland or airdrop. After reviewing the following mission planning considerations, as well as the advantages and disadvantages of airland versus airdrop that are outlined later in this section, planners should be able to select the most effective method of airlift, and efficiently use available assets.

(1) Physical characteristics of objective area (terrain, availability of suitable LZ/DZ).

(2) Cargo characteristics (size, weight, required load survivability).

(3) Cargo and/or passenger quantity.

(4) Number and type airlift assets available.

(5) Number of aircrews and ground crews available.

(6) Duration of operation.

(7) Threat assessment and force protection requirements.

(8) Desired phasing of forces into the OA.

b. **Airland**

(1) **LZs.** An LZ is any specified zone used for the landing of aircraft. LZs are usually less sophisticated than airfields, with facilities meeting only the minimum requirements of anticipated operations by specific aircraft. They may vary from isolated dirt strips with no off-runway aircraft-handling areas to hard surface airfields with limited support infrastructure. Their main advantage is that it is quite often possible to find or construct LZs near the operating area of supported forces. A close-by, but less sophisticated, LZ may offer fewer delays in providing airland resupply to forward-deployed troops, assistance to humanitarian operations, and shorter times for medical evacuation. Due to their isolation and possible proximity to threats, operating at these terminals requires significant planning.

(a) The JFC determines the most suitable LZ locations that meet aircraft operational requirements, ground component requirements, and construction considerations.

(b) If an airfield is to be constructed, the supported component engineer designated by the JFC and USAF staff engineer must agree on its specific site. The supported component engineer controls the selected site until the designated airlift representative accepts use of the LZ.

(c) Aircraft may have to use LZ facilities before construction is completed. In addition to emergency landing situations, delivery of additional construction equipment, emergency supplies, or reinforcing units may be necessary.

(d) When established construction requirements are met and the designated airlift representative accepts the LZ, control passes to the airlift mission commander. The JFC staff assigns an appropriate engineer force to repair and maintain the critical landing surfaces, taxiway, and hardstands. The threat situation, type and location of the LZ,

availability of engineering forces, expected LZ use, and weather will drive the unit's composition and size.

(e) Although the senior planning HQ assigns the general landing area, subordinate units usually designate specific LZs. Desirable characteristics of LZs are ease of identification from the air; suitable airfield capabilities; a straight, unobstructed, and secure approach for aircraft; and close proximity to ground objectives.

(f) The construction engineer should classify LZs according to the applicable aircraft and airfield criteria furnished. Suitability of LZ dimensions vary according to the types of aircraft involved. Factors considered include aircraft ground roll, temperature, field elevation, and nature and conditions of the landing surface. Expected maximum takeoff and landing gross weights, obstructions, and terrain on approach and departure must also be considered.

(g) Existing facilities, such as roads and open areas, should be used to reduce the time and effort for new construction. HN agencies may be used to identify emergency or contingency runways.

(2) **Advantages of Airland Operations**

(a) Provides greater unit integrity and rapid unit deployment after landing.

(b) Eliminates payload dispersal associated with airdrop.

(c) Carries the least risk of injuring personnel and damaging loads.

(d) Requires minimal specialized training and equipment for transported personnel.

(e) Requires less special rigging and packaging of materiel than airdrop.

(f) Permits the maximum allowable cabin load by eliminating the volume and weight penalties of preparing loads for airdrop deliveries.

(g) Maximizes opportunities to backhaul cargo and evacuate personnel.

(3) **Disadvantages of Airland Operations**

(a) Requires available, moderately level, and unobstructed airfields or LZs of appropriate length which are able to sustain the aircraft's weight.

(b) Increases intervals between aircraft deliveries depending on an airfield's infrastructure and support capability.

(c) May require mission support such as ground-handling equipment, transportation assets, and onward movement and distribution networks.

(d) Prolongs exposure to air or ground attacks.

(e) Requires suitable lighting and instrument-approved equipment for anything other than day operations in good weather.

(f) Reduces available airlift flexibility when using uncontaminated aircraft to land in a contaminated environment. Once contaminated, an aircraft will not be allowed to operate in an uncontaminated environment.

(4) **Airland Specific Planning Considerations**

(a) Working MOG reflecting the number of aircraft that can cycle through an airfield in a given time based on services available.

(b) Available MHE.

(c) POL storage and dispensing capability.

(d) Available transportation assets to transport cargo and personnel.

(e) Pavement strength and obstacle clearance requirements.

(f) Aircraft servicing, maintenance, and damage repair capabilities.

(g) Crew rest facilities.

(h) Airspace considerations, to include the ability to control airspace in the absence of ATC facilities.

For further information on tactics, techniques, and procedures for terminal airfield ATC, see Army Techniques Publication 3-52.3 (FM 3-52.3)/MCRP 3-25A/NTTP 3-56.3/AFTTP 3-2.23, Multi-Service Tactics, Techniques, and Procedures for Joint Air Traffic Control.

(5) **Load Planning Considerations**

(a) Administrative-loading gives primary consideration to using airlift assets most efficiently. Administrative-loading maximizes use of volumes and weight capacities of airlift aircraft and their allowable cabin load without regard to ground force tactical considerations. Routine air movement is usually unopposed and uses secure airfields or well-established LZs; the majority of these missions involve the administrative loading of troops and equipment.

(b) Combat-loading arranges personnel and materiel to arrive at their intended destination in an order and condition so they are ready for immediate use. Combat-loading maximizes the combat readiness of the organizations and equipment being moved and emphasizes effectiveness. Airlift forces can move combat-loaded units to maximize their readiness for immediate combat operations. Given the assumption of immediate combat, user requirements should dictate scheduling and load planning.

c. **Airdrop**

(1) **DZ.** A DZ is a specific area upon which airborne troops, equipment, or supplies are airdropped. Although DZs are normally on relatively open, flat terrain, they may be situated on almost any site (including water) suited in size and shape for intact delivery and recovery of airdropped personnel and materiel. The main advantage of a DZ is the ability to deliver forces or materiel when an LZ or airfield cannot be constructed or used because of expense, time constraints, security risks, diplomatic sensitivities, or terrain. Similar to LZs, their isolation and possible proximity to threats makes security more difficult. Operations at DZs require significant planning because of limited on-ground support and likely threats to the aircraft and support personnel.

(a) **Establishing a DZ.** DZ size and selection are the shared responsibility of the supporting and supported JFCs and depend on the load being dropped, method of delivery, dispersal pattern, and the level of risk the JFC is willing to accept. A physical survey, accomplished by a surveyor, and a safety-of-flight review are required before a DZ can be approved for use. The supported force is responsible for DZ establishment, operation, safety, and elimination or acceptance of ground hazards associated with the DZ. The airlift mission commander is responsible for the safety-of-flight review.

(b) **DZ Types.** There are several different types of DZs that are tailorable to specific operations and locations, differing primarily in their shape and size. Rectangular DZs are normally rectangular due to the longer length requirements with one axis of flight that permit run-ins from opposite directions. A circular DZ has multiple run-in headings and is inherently random. Mission requirements and usable terrain govern its size which corresponds to the minimum required distance from the point of impact to one of the trailing edge corners of a rectangular DZ for the same type and number of loads being dropped. In other words, the entire DZ box fits inside the circle. The final type, an area DZ, consists of a start point (point A), an end point (point B), and a prearranged flight path (line of flight) over a series of acceptable drop sites between these points.

(2) **Airdrop Specific Planning Responsibilities.** The JFC makes the decision to continue, cancel, or postpone airdrop operations based on the recommendations of the ground and air component commanders. The airborne force commander and airlift mission commander should coordinate together throughout the aerial delivery planning and mission execution on matters such as:

(a) Flight routing to/from the objective area, to include re-attack options, terrain obstructions, ease of zone identification, and enemy defenses.

(b) DZ size and geographic relationship to the initial objective.

(c) Terrain conditions on the DZ that could cause an unacceptable number of injuries, excessive equipment damage or loss, or other deployment delays.

(d) Earliest possible collaboration on intelligence matters.

(e) Identification of mission critical cargo and go or no-go decision point.

(3) **Airdrop C2 Considerations.** For a responsive airdrop system in supporting requirements, clear C2 authorities are essential between the supporting USAF component and supported component. Supported components provide and deliver the rigged airdrop loads to the departure airfield and load the supplies onto the airdrop aircraft under supervision of USAF personnel. Units requesting airdrop resupply have responsibilities to accomplish both before and after submission of airdrop requests. Prior to request submission, units should determine supplies and equipment needed, location of DZ, and time and date airdrop is desired. Once submitted, the units must prepare and secure the DZ; recover airdropped supplies and equipment; and, finally, recover, retrograde, or destroy airdrop equipment.

Further information on DZ activities can be found in AFI 13-217, Drop Zone and Landing Zone Operations.

(4) **Airdrop Advantages**

(a) Uses principle of surprise in supporting combat operations.

(b) Minimizes aircraft and personnel exposure to threats at the target area.

(c) Permits sustainment deliveries to units operating away from airfields and assault LZs.

(d) Permits delivery of combat forces and materiel, concentrated and in mass, in minimal space and time.

(e) Permits delivery of personnel and materiel in conditions that would prevent airland delivery operations.

(f) Eliminates the need for airlift ground support infrastructure and personnel.

(g) Permits critical cargo delivery by an uncontaminated aircraft into a contaminated LZ or airfield.

(5) **Airdrop Disadvantages**

(a) Carries an increased risk of injury to personnel or damage to cargo.

(b) Requires special training for riggers, transported personnel, and aircrew.

(c) Limits cargo loads because additional rigging is required for airdropped materiel.

(d) May decrease aircraft range due to low-level ingress/egress and formation tactics employed.

(e) Increases mission planning time and complexity.

(f) Increases cost of resupply due to decelerators, rigging, and lost opportunity of the additional cargo that could have been carried on an airland mission.

(g) Increases likelihood of dispersed cargo versus airland delivery of cargo.

d. **Airborne Assaults and Follow-On Airland Operations Considerations**

(1) Planning airlift operations is a complicated process involving a few basic principles and numerous interdependent considerations. Service components must facilitate their airlift movement process to include performing and arranging to:

(a) Bring units and materiel to departure terminals.

(b) Prepare those resources for air movement.

(c) Provide support services (meals, medical, billeting, and other appropriate services) to transient and arriving units.

(d) Receive and transport units and materiel from arrival terminals.

(e) Prepare all manifests, movement documents, and reports related to the actual movement.

(2) The purpose of these actions is to move forces expeditiously, with minimum expenditure of resources and minimum exposure to hostile actions. Responsibility for controlling movements does not equate to command authority over airlift forces. OPLANs for employment of forces are prepared to cover possible missions and locations. Detailed planning for specific operations is performed by the participating component commands and subordinate commands; to enhance efficiency, all participants should make maximum use of existing plans.

17. Air Refueling

a. While many considerations for air mobility forces are the same for airlift and AR assets, there are some specific considerations unique to tanker operations. While AR is normally conducted in friendly airspace, missions may require operations over hostile territory and in contested airspace. Anchor areas and tracks may place tankers in an extremely vulnerable position and should be limited to friendly airspace when possible. AR missions over hostile territory should be conducted only after careful risk considerations and when at least regional air superiority is achieved.

b. **Boom Versus Drogue.** If planned operations will include a significant number of receivers requiring drogue-type refueling intermixed with receivers requiring boom-type refueling, planners should consider using tankers capable of both types of refueling on the same mission.

c. **Total Offload Versus Booms in the Air.** Planners must consider whether planned operations will emphasize total offload capability for only a few receivers or a rapid

refueling capability for multiple receivers. If total offload capability is more important (such as for large aircraft), fewer numbers of tankers with larger fuel loads should be planned. If the mission emphasis is on frequent, rapid refuelings to multiple receivers (such as multiple fighter strike packages), it is more effective to use a larger number of tankers maximizing the number of available booms in the air.

d. **AR Allocation.** At the operational level, AR allocation consists of translating the JFC's air apportionment decisions into the total number of AR sorties by aircraft type, which are available for each operation or task. AR aircraft are matched against receivers in the ATO based on the JFC's air apportionment guidance but tempered by changing conditions. At this level, the most important decisions are those that place tanker aircraft types against receiver requirements, while optimizing their use. AR capability can be increased without increasing the number or size of tanker aircraft by carefully matching tanker aircraft types against receiver mission requirements. This involves greater use of refuelable reliability tankers, assigning individual tankers to multiple receivers or receiver packages and ensuring receiver AR requests accurately reflect their mission requirements. When developing daily AR allocations, planners must consider boom versus drogue requirements, emphasis on total offload versus booms in the air, and SOF requirements.

18. Aeromedical Evacuation

a. AE planners are an integral part of the airlift planning team and must take many factors into account to select the best or most appropriate means of executing each AE mission. AE planning requires the integration of joint and Service-specific capabilities into the JFC's concept of operations. The AE planner should interface with medical planners to ensure appropriate medical capabilities and support into the en route care structure. Theater evacuation policy, airlift routes, aircraft considerations, airfield capability, security forces, BOS, communications, PMIs, AE equipment support, and ground transportation are several factors to consider when planning the en route care laydown. Comprehensive planning will ensure a coordinated effort in providing timely and effective AE.

b. **AE Planners.** A Theater Aeromedical Evacuation System manager should be incorporated into the AMD to outline, develop, and coordinate theater patient evacuation plans along airlift routes, including number and location of AE assets needed to support operational requirements. Additionally, a senior officer with extensive AE experience and knowledge of plans and operations should be considered for the chief of the AECT in the AMD. This individual directs the actions of the AECT and offers patient evacuation planning and execution guidance to the AMD chief.

c. **Airlift Routes.** Airlift routes must be identified to establish potential AE plans. The medical planners should interface with the airlift and logistics planners to ensure the bedlift plan integrates airflow and medical capabilities along airlift routes. Based on planning directives, the CCMD OPLANs/concept plans will include bed down of AE-capable airlift, strategic APODs and/or APOEs, planned mission routing, availability of intratheater/intertheater retrograde airlift for AE missions, and planned PMRs (evacuees) by C-day (the unnamed day on which a deployment operation commences or is to commence).

d. **Aircraft Considerations.** It is critical to identify aircraft availability and capability based on patient load and the clinical requirements of the patients expected to be moved. Organic aircraft are obtained primarily through mission tasking or through en route diversion and mission reprioritization for AE use. Organic airlift is the major component of expeditionary AE. Requirements can vary from obtaining seat space to move ambulatory patients, to procuring a pallet position to move litter patients to tasking an entire aircraft to perform a single mission or routine channel mission. The airlift operations centers have visibility of airlift operating in the JOA and may divert a mission, in-system select, to support the patient request.

e. **En Route Patient Staging System (ERPSS).** ERPSS is a deployable asset for temporary staging, casualty care, and administration support during contingency operations. It is located at designated transportation hubs to support the en route care of patients in the AE system. ERPSS holding capability is 2-6 hours for patients at the tactical level entering the PM system and up to 24 hours at en route strategic locations. The ERPSS requires logistical, clinical, ancillary medical, and administrative support from the supporting base. The ERPSS may be augmented with additional personnel and equipment to increase casualty staging capability as needed.

f. **Airfield Capability.** The mobility en route structure and proximity of MTFs to the airfield determines AE laydown. Proposed onload, en route, and offload airfields must be able to support the operation. Mission planners must consider flight line security, working MOG, secured launch, and Phoenix Raven requirements for designated airfield locations.

g. **Security Forces.** The requirements for security forces to support aircraft during AE missions must be considered in the planning process. The Phoenix Raven program provides these specially trained security forces personnel to protect AMC aircraft and will be included on all AE missions to locations designated “Ravens required.” Medical crew members AE missions will carry weapons, when appropriate and authorized, to protect themselves and their patients.

h. **BOS.** AE operations depend on integration of the USAF and joint host Service to provide BOS. This support is needed for AE units specific locations, as well as en route transient support during patient evacuation through the system and must be coordinated with appropriate agencies prior to deployment. These requirements include, but are not limited to, transportation (including patient transportation); messing; and other consumable materials, water, fuels, cryogenics, liquid oxygen and other gases (obtained from fuels or on a contract basis), billeting, latrines, showers, laundry, and security. Additional requirements include alternate generator support, fire protection, vehicle maintenance support, vehicle decontamination, maintenance and logistics, life support, contracting, supportive information/communications systems maintenance, waste management, and personnel decontamination.

i. **Communications.** Planners ensure AE communication capability is integrated with the mobility airlift and communication squadron network. Communication must be maintained with subordinate deployed AE elements that may not be on or near a USAF wing.

j. **PMIs.** PMIs are the jointly assigned supplies and equipment necessary to support PM within the en route care system. Medical logistics and AE personnel manage inventory availability at PMI centers, cells, and nodes and ensure AV and flow of PMI through available transportation methods to meet requirements. AV is provided via the Patient Movement Items-Asset Tracking System (PMI-ATS). Deployed PMI system teams collocate at key interface points and theater MTFs to provide initial patient evacuation capability, sustain patient evacuation operations, and minimize equipment turnaround time. During contingency operations, PMI assets and PMI-ATS requirements are initially identified by the CCDR and pushed to support PM at key patient insertion points in the AE system. PMI support during military engagement, security cooperation, and deterrence activities is supplied by the CCMD, as required.

k. **AE Equipment Support.** Equipment repair is essential in the theater for routine maintenance and minor repair. Deployed MTFs (and potentially civilian and multinational facilities) can support AE equipment repair and maintenance. Therefore, the AE planner, in conjunction with the medical logistics planner, should insert AE medical equipment technician capability into airlift hubs and align with local MTFs to ensure AE equipment is processed to meet mission requirements.

l. **Ground Transportation.** Most AE units deploy with integral transportation capability specifically designated for the movement of assigned equipment packages with limited capability to transport AE personnel. AE planners should ensure proper aircraft support equipment is available at the airfield, such as support pallets and loading systems. The MTF is responsible for transport to the aircraft. Medical planners should determine the availability of other Service ambulances, other vehicles and, if necessary, establish contracts or obtain HNS.

m. **Medical Regulating and AE Considerations**

(1) What is the theater PM policy?

(2) What infrastructure is available for patient AE?

(3) What airfields are available for intratheater and intertheater AE?

(4) How will PM be regulated?

(5) Who will be responsible for AE support?

(6) How will AE support be requested/coordinated?

(7) Will an AE team and AE crew be activated for the operation?

(8) Will a JPMRC be activated for the operation?

For additional information, see AFTTP 3-42.8, Expeditionary Medical Logistics System; *JP 4-02,* Joint Health Services; *and AFI 10-403,* Deployment Planning and Execution.

19. Air Mobility Support

a. Common users directly benefit from understanding the air mobility infrastructure by becoming familiar with the airlift mission funding categories. Air mobility providers are impacted by several variables which influence the type of support received by the requesting user. Therefore, when submitting requests, users must not only make choices based on an objective analysis of their exact needs but must also remain flexible as their desires must be balanced against the CJCS priority system and other common-user needs. As the threat increases, competing demand for air mobility support may come from USG departments and agencies, as well as US and foreign military forces. Airfield and aerial port capabilities may result in mission delays and backlog cargo at intermediate or theater offload terminals. AR and airlift forces have finite maintenance and regeneration cycles, which may quickly be exceeded. GAMSS forces have limited organic resources and can only operate barebase terminals for limited time periods.

b. **Airfield Opening and CR Forces.** CR/GAMSS forces are an integral part of the air mobility force, and its integration into the initial deployment flow is critical to any effective movement/planning process. These forces may be the first USAF presence on an expeditionary airfield regardless of how the airfield is gained (e.g., seizure or acceptance from a HN) or which follow-on US or multinational entity will operate the airfield. Although relatively small in numbers, CR/GAMSS forces provide a vital capability and successful accomplishment of air mobility operations hinges on this support. When opening an airfield, CR/GAMSS forces normally coordinate actions with theater command elements to ensure theater-specific responsibilities, such as force protection, meet mission requirements. Issues to be considered during planning are: the handoff of the airfield from any seizure force to the CR/GAMSS element, the CR/GAMSS element to follow-on sustainment unit or HN forces, and forward deployment/redeployment and reconstitution of the CR/GAMSS forces. Within the overall mobility support-planning framework, there are four fundamental considerations: task, threat, core capabilities, and timing.

(1) **Task.** Although specific circumstances and deployed locations may vary and the CR/GAMSS composition will change, the operational task and purpose of the CR/GAMSS remains constant. The basic requirement is to deploy CR/GAMSS forces to a location where they either establish initial airbase opening operations at a previously unsupported base or augment the in-place or permanent en route support system to conduct mobility support to worldwide common users. Worldwide taskings for CR/GAMSS forces center on this operation. The fixed infrastructure is composed of CONUS and overseas en route locations. This entire network is the foundation for CR/GAMSS operations and their locations provide C2, logistics, and aerial port services to meet DOD operational requirements.

(2) **Threat.** CCDRs should always be alert to the possible threats facing CR/GAMSS forces. This includes noncombat operations like foreign humanitarian assistance. Forces may face threats to security from individuals and groups, as well as military and paramilitary units. Threat assessments should be conducted in consultation with intelligence, security forces, counterintelligence forces, medical planners, interagency partners, and in-country diplomatic and defense liaison personnel. A provision for force

protection is required for any operation. The threat assessment will determine the level of force protection required. It may be necessary to consider delaying deployments until the situation and area are stabilized. Threats can directly affect the flow of air mobility operations and objectives of the JFC. CR/GAMSS forces are trained and equipped to provide AMC asset/self-protection capabilities against conventional weapons. CR/GAMSS forces are trained/equipped to survive CBRN threats and hazards but must be augmented by emergency management personnel and dedicated force protection elements whenever the assessed threats dictate.

(3) **Core Capabilities.** The unique capabilities of CR/GAMSS forces include multiple technical qualifications and are packaged as deployment modules. This training, experience, and organization makes them ready for autonomous operations in uncertain environments. Consequently, commanders must carefully manage their allocation against prioritized requirements.

(4) **Timing.** The timing of force movements is a critical consideration. CR/GAMSS forces usually preposition upon receipt of the CJCS warning/alert order. This early positioning enables effective airlift and AR operations. CR/GAMSS forces are sequenced early in the TPFDD or DEPORD planning. For large-scale mobility operations, this early integration in the deployment flow ensures APODs are prepared to receive cargo and passengers.

c. **Planning Considerations.** There are additional planning considerations impacting throughput and affecting operation or campaign objectives.

(1) **Footprint.** The number of people, the amount of equipment deployed for an operation, and the physical space they occupy on the ground comprise the footprint of the force. The scale of any operation determines the footprint, but the proper balance of people and equipment and using reachback can minimize the footprint of deployed forces. As footprint size increases, more airlift is required to support these forces and less airlift is available to meet other JFC requirements. Diplomatic restrictions may affect the size of a footprint. An HN may limit the number of foreign personnel on its soil, making the need for reachback support even more crucial. Paring and tailoring of forces based on the in-place infrastructure can also reduce the footprint. This reduction enables airlift aircraft to be reassigned for other priority taskings.

(2) **Expeditionary Combat Support and BOS.** GAMSS forces may deploy with limited or no organic expeditionary combat support or BOS assets. Therefore, the supported commander should be prepared to meet the additional requirements of GAMSS forces. If tasked to augment theater-assigned support personnel, the GAMSS force commander can plan for and deploy with additional support personnel.

(3) **HNS.** Deployed operations always rely, to some extent, on HNS, which can include diplomatic clearances, airspace access, lodging, food services, POL, water, communications, labor, or other types of support. Assessment of HNS capability and willingness is a critical consideration during planning. Shortfalls in HNS are normally overcome through additional supply efforts, including contract support. If this assessment

is not accurate, forces will not have adequate support to conduct operations, or finite transportation capacity will be wasted on cargo already available at the deployed location. Use of HNS agreements can be an effective force enabler and force multiplier. Obtaining local labor support from the HN affords US forces economy of force. The force multiplying effect is the reduced airlift required for force support. Footprint size is also dramatically reduced when HN services and support are maximized. To comply with congressional oversight, HNS should be tracked and reported to the applicable command element.

(4) **Contract Support.** Contracted support can be a significant force multiplier. Operational contract support provides tools and processes to manage the variety of services that may be required to support air mobility operations (i.e., base operational support, transportation, and security). Contracted support and its associated contractor management challenges must be integrated early in the operation planning process.

For more information on operational contract support, see JP 4-10, Operational Contract Support*, and DODI 3020.41,* Operational Contract Support. *For detailed information on planning operational contract support, see CJCSM 4301.01,* Planning Operational Contract Support.

d. **Air Mobility Infrastructure.** Each type of infrastructure has unique advantages and disadvantages that must be considered when planning air mobility operations.

(1) **ALOCs and Air Terminals.** Establishing ALOCs between air terminals is key to rapid global mobility. ALOCs are air routings connecting a military force with a base of operations that maximize load and fuel efficiencies for airlift, AR, and receiver aircraft, while providing a structure to the airflow. An effective ALOC's structure rests on the proper mix of stage and air bridge operations. Stage operations are typified as missions that originate from a CONUS terminal; delay en route at an intermediate location for refueling, crew stage, and/or crew rest; and terminate at an OCONUS terminal. These established routings, air terminals, and AR tracks enable commanders to effectively and efficiently move and position aircraft, cargo, or personnel. Terminals serving ALOCs include ground-based locations where resources are either loaded or offloaded. AR tracks are a series of specified points (usually along a receiver's route of flight) where refueling and receiver aircraft conduct in-flight refueling operations. This applies to tankers refueling cargo aircraft, refueling bombers, or assisting in the movement of fighters as part of a deployment.

(2) **Aerial Port.** An aerial port is an airfield that has been designated for the sustained air movement of personnel and materiel, as well as an authorized port for entrance into or departure from the country where located. An airfield is an area prepared to accommodate transiting aircraft (to include any required buildings, installations, and equipment). Some air mobility aircraft are capable of operating on unimproved surfaces, but for large operations, it is more effective to establish APODs and APOEs on prepared airfields. Prepared airfields are usually preexisting facilities, with hard-surface runways, extensive ground operations areas (for taxiing, parking, cargo handling, and other appropriate uses), and support infrastructure required for sustained operations. These

attributes usually make prepared airfields the best available locations for air mobility main bases and the best available terminal for deployment, redeployment, and large-scale operations. These attributes limit the number and location of these types of terminals. As a result, commanders should expect these terminals to be targeted by enemy forces.

e. **Marshalling.** Marshalling includes the preparations required to plan, document, and load equipment and personnel aboard the aircraft. The marshalling plan provides the administrative and logistic procedures to accomplish these tasks. The marshalling area is usually located near departure camps and airfields to conserve resources and reduce the opportunity for observation. When the number of departure airfields is limited or when requirements dictate dispersion, loading may be accomplished on a phased schedule. The USAF component's portion of the marshalling operation is developed during air movement planning and consists of instructions regulating aircraft movement and the parking plan. These procedures are stipulated in appendix 5 (Mobility and Transportation) to annex D (Logistics) of the OPORD.

(1) **Planning.** The joint force staff coordinates with administrative and logistic agencies for maximum support during marshalling. This support includes transportation, communications, and personnel support functions (campsite construction, operation, and maintenance; messing; and religious, fitness, recreation, and other morale services) and permits the unit to concentrate on preparation for the movement. Support may also include local security personnel to supplement normal USAF security at the departure airfield. The Air Transportability Test Loading Activity is the DOD agency responsible for the approval of airlift cargo (DODI 4540.07, *Operation of the DOD Engineering for Transportability and Deployability Program*) on fixed-wing USAF cargo aircraft. Items that exceed certain parameters will create air transportability problems and delays unless a certificate already exists on the organization's website (https://intelshare.intelink.gov/sites/attla). For details on air base defense, see JP 3-10, *Joint Security Operations in Theater*.

(2) **Logistics.** The unit logistics officer normally prepares the marshalling plan. The plan is an appendix to the service support annex of the OPORD or an annex to the administrative and logistics order of the airlifted force. It should contain procedures for cover and concealment. The marshalling plan includes procedures for moving units from marshalling areas through the alert holding and call forward areas to the ready line. Finally, it includes methods for loading troops and equipment into individual aircraft.

(3) **Selection of Marshalling Areas and Departure Airfields.** The selection of marshalling areas and departure airfields is based on the air movement plan and influenced by several common factors. There is no order of priority among these factors, but any one of them could become the basis for final selection. To avoid concentration of forces, multiple marshalling areas and departure airfields should be selected. Excessive dispersion, however, makes C2 more difficult and may diminish the effectiveness of supporting activities. The factors affecting selection of marshalling areas and departure airfields are illustrated in Figure VI-1.

(4) **Unit Preparation.** For security reasons, marshalling should be accomplished quickly. To prepare for marshalling, deploying units:

(a) Establish liaison with the departure airfield control group (DACG).

(b) Obtain equipment and supplies as early as possible.

(c) Issue prepackaged supplies and equipment to the airborne forces to expedite loading operations.

(d) Perform final preparation of vehicles and equipment.

(e) Ensure adequate shoring and dunnage materials are readily available.

(f) Receive parachutes and other airdrop items and prepare airdrop loads in coordination with the responsible airdrop support unit.

(g) Prepare and certify aircraft load plans, personnel and equipment manifests, and annotate any hazardous materials by class. Submit load plans through the DACG (or designated CCDR agent if no DACG is present) to the supporting airlift elements for verification and approval by appropriate USAF officials. As a minimum, manifest information should be submitted electronically to facilitate movement processing and ITV reporting.

(5) **Responsibilities.** Arrival and departure airfield operations are conducted by USAF units and the deploying component units. CR forces (or A/DACGs) marshal the

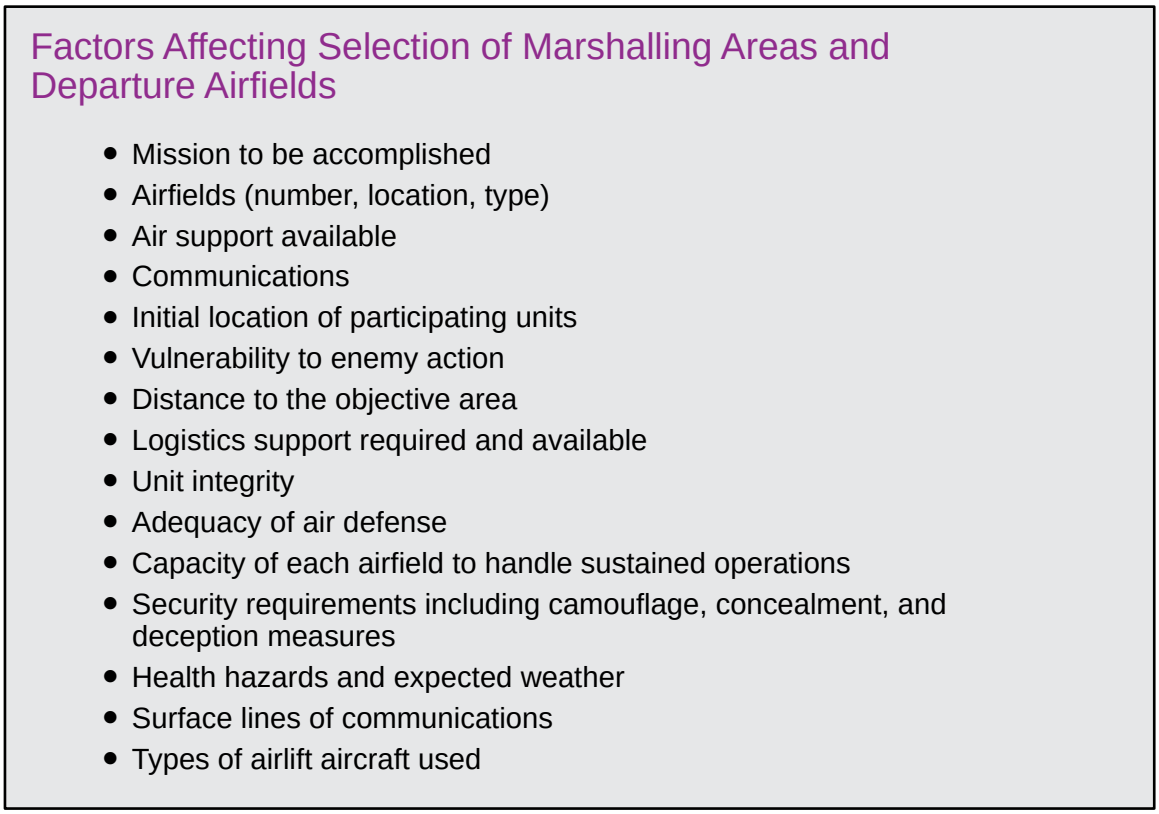


Figure VI-1. Factors Affecting Selection of Marshalling Areas and Departure Airfields

deploying unit and associated equipment for airlift. The organization employed depends on the size of the unit being deployed and the number of aircraft involved.

(6) **Execution.** The deploying unit assembles, prepares, and documents its cargo and personnel for air movement. Discrepancies are identified and corrected prior to air movement. Departure airfield operations consist of four separate areas of activity. Each activity takes place in a designated area and involves specific tasks. Figure VI-2 shows the four separate areas of activity and outlines the major functions of each area.

(a) **Movement to Aircraft Loading Sites.** The deploying commander assigns priorities for deploying unit cargo, vehicles, and equipment to loading sites based on required loading and scheduled station times published in the air movement plan. The deploying unit's installation MAJCOM provides transportation to move personnel and chalk loads (by chalk number) to aircraft. A chalk is the number given to a complete aircraft load and to the transporting carrier. The load can consist of cargo, passengers, or both. Chalks are normally planned for loading in the order required on arrival. Personnel in charge of aircraft chalk loads should receive mission briefings concerning the route to their respective aircraft. The GAMSS units control airlift movement at the departure airfield. Routes to and from loading areas should be clearly marked. Strict control of air and ground traffic is maintained on and across runways and strips.

(b) **Preparation of Platform Loads.** If airdrop is part of the operation, platform loads are prepared during marshalling, which may require additional lead time. When planning the preparation and marshalling of platform loads, planners should anticipate additional requirements for skilled rigging supervision and MHE, as well as adequate facilities, to include a relatively clean and illuminated rigging area.

(c) **Cross-Loading.** Whether administrative- or combat-loaded, aircraft may also be cross-loaded. Cross-loading is the distribution supplies and/or personnel among aircraft to ensure the entire supply of one item or unit is not lost by an abort or loss of one or a few aircraft. Cross-loading does not alter the desirability of keeping ground force crews in the same aircraft as their vehicles, weapon systems, or other crew-served equipment.

(7) **Arrival Airfield Operations.** Although arrival operations are not part of the marshalling process, they are important in air movement. If not orderly, arrival operations could adversely affect the mission. Arrival operations take place in three main areas—the offloading ramp, the holding area, and unit area—and begins the reception segment of joint reception, staging, onward movement, and integration (JRSOI). JRSOI is the essential process that transitions deploying forces, consisting of personnel, equipment, and materiel arriving in theater, into forces capable of meeting the CCDR's operational requirements. Reception operations include all those functions required to receive and clear personnel, equipment, and materiel through the port of debarkation. This process may be modified or streamlined for combat offload operations. Figure VI-3 shows a typical layout of arrival airfield operations.

Departure Airfield Operations

Marshalling Area

Deploying unit responsibility.

Prepare vehicles, equipment, cargo, and personnel into chalk loads for delivery to the DACG alert holding area for air movement.

Alert Holding Area

DACG area of responsibility.

The DACG ensures the movement of vehicles, equipment, and cargo from the alert holding area to the call forward area in orderly fashion.

The reception of aircraft loads and conducting preinspections are accomplished here.

Call Forward Area

Dual DACG and CRF area of responsibility.

Joint inspection and discrepancy corrections are conducted in this area.

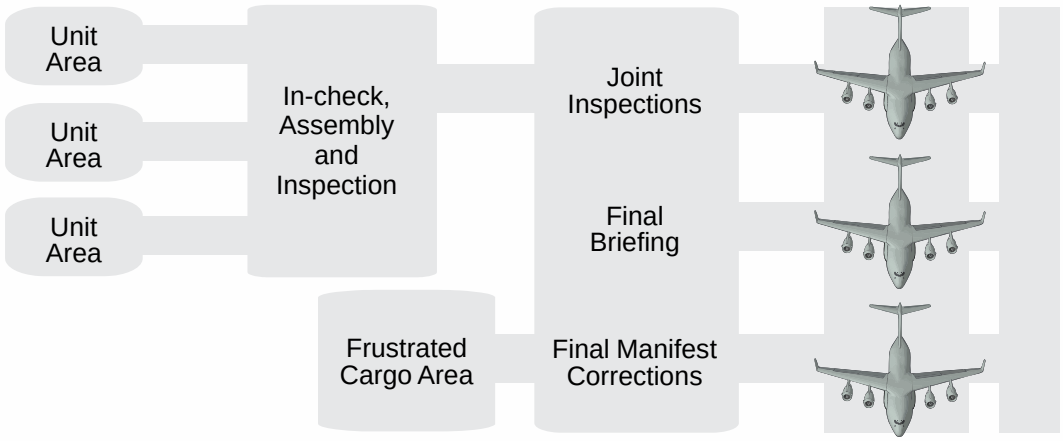
Chalk loads are moved from the call forward area and released into the CRF at the ready line.

Ready Line/ Loading Ramp Area

CRF area of responsibility.

Receives control of chalks from the DACG and conducts additional briefings and inspections as required.

Responsibility for all air movement operations.



Major Functions

- In-checks cargo
- Prepares personnel and cargo manifests
- Prepares other documentation agreed upon during the joint planning conference
- Conducts initial inspection of each chalk
- Releases each chalk to the DACG at the alert holding area

Major Functions

- Accepts chalk from deploying unit
- Conducts inspection
- Establishes traffic flow pattern
- Establishes communications with deploying units and other functional areas
- Provides backup communications with CRF

Major Functions

- Conducts joint inspection
- Conducts final briefing and performs final manifest corrections
- Compiles statistical data
- Provides area for correction of discrepancies identified during the joint inspection

Major Functions

- Establishes aircraft parking plan
- Receives load at ready line, directs to aircraft and, in conjunction with aircraft load master or load team chief, supervises the supported component while loading and restraining cargo aboard aircraft

Legend

CRF contingency response force

DACG departure airfield control group

Figure VI-2. Departure Airfield Operations

(8) **Debarkation Airfield Operations.** There are major considerations for debarkation that can dramatically affect the overall amount of equipment or personnel received in a given amount of time. These include MOG, airfield operating hours, customs

Arrival Airfield Operations

Off-Load Ramp Area

CRF area of responsibility.

Responsible for air traffic control, aircraft parking, supervision of offloading operation, and releasing planeload to AACG.

Holding Area

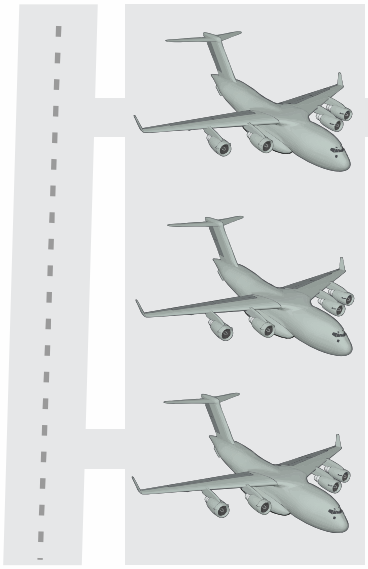
AACG area of responsibility.

Receives and processes planeloads (chalks) for release to the deployed unit.

Unit Area

Deployed unit area of responsibility.

Unit receives planeloads from the AACG which terminates the air movement.



Major Functions

- Performs base operations and other related operational functions
- Coordinates flight clearances
- Maintains aircraft traffic logs and operations records
- Accomplishes aircraft parking and provides parking plan to AACG
- Monitors intelligence functions
- Establishes communication with the AACG
- Provides MHE, MHE operators, and MHE mechanics beyond the capability of the user and provides and operates any MHE that is unique to Commander, USTRANSCOM

Major Functions

- Assembles chalk and inspects for completeness
- Provides minor services (gas, oil, minor maintenance)
- Develops statistical data
- Establishes radio and/or land lines to the unit area, functional areas, and backup communication with unloading area (CRF)
- Establishes temporary storage area

Major Functions

- Accepts aircraft loads
- Reception segment of joint reception, staging, onward movement, and integration

Legend

AACG	arrival airfield control group	MHE	materials handling equipment
CRF	contingency response force	USTRANSCOM	United States Transportation Command

Figure VI-3. Arrival Airfield Operations

operating hours and restrictions, special handling (hazardous cargo handling/parking), HN restrictions, fueling operations, aircraft requirements, MHE, on-site maintenance support, and aircraft ground equipment. Unit commanders or team chiefs coordinate with the

A/DACG for use of available facilities and areas at departure airfields for a command post, communications centers, briefing areas, and equipment and supply handling points.

For more information on JRSOI, see JP 3-35, Deployment and Redeployment Operations.

f. **Regional Air Movement Control Center (RAMCC).** Planners should consider establishing a RAMCC to coordinate movements of civilian fixed-wing airlift in support of military and commercial air operations throughout the designated OA by assigning arrival and departure times at selected airfields and coordinating over flights. Arrival slot time coordination between the RAMCC and airlift control team ensures the MOG is not exceeded. Preplanned aircraft arrival slot times avoid ramp congestion and increase the efficiency of the entire rapid global air mobility force.

Additional information concerning RAMCC procedures can be found in Air Force Doctrine Annex 3-52, Airspace Control.

g. **Withdrawal or Restaging Plan.** The withdrawal or restaging of forces by air should be done IAW the general guidelines for redeployment and extraction airlift operations. Once the appropriate ground force commander orders an operation and establishes movement priorities, load plans, and departure points, the COMAFFOR or JFACC (if designated) should control the air movement. GAMSS units should be placed at the departure points, if possible. The ground force commander should provide trained loading teams at the departure points to assist airfield support units in loading and securing equipment, with technical assistance and supervision from USAF personnel. Specific withdrawal and equipment destruction procedures are contained in appropriate Service manuals.

SECTION C. SEALIFT-SPECIFIC PLANNING CONSIDERATIONS

20. General

The actual or contemplated use of sealift assets leading up to and during a crisis or conflict involves significant operational considerations, each of which is the subject of detailed planning. Contingency operations are normally shaped by the CCDRs who develop an OPLAN or OPORD with specific logistical requirements for operations directed by the President, SecDef, or CJCS. Deployment and redeployment transportation requirements are planned using JOPES data. SDDC and MSC identify ship types and contractual mechanisms that can support the specific requirements for the unit being transported. Operational considerations lead to a great many combinations of ships that may be considered for delivery of unit equipment and other cargo to their destinations. The amount of time and space available significantly influences the planning process. Supporting strategic transportation requirements is a four-step process, as shown in Figure VI-4. The four steps are:

a. Determine the cargo and sustainment movement requirement.

b. State the requirement in the appropriate units of measure.

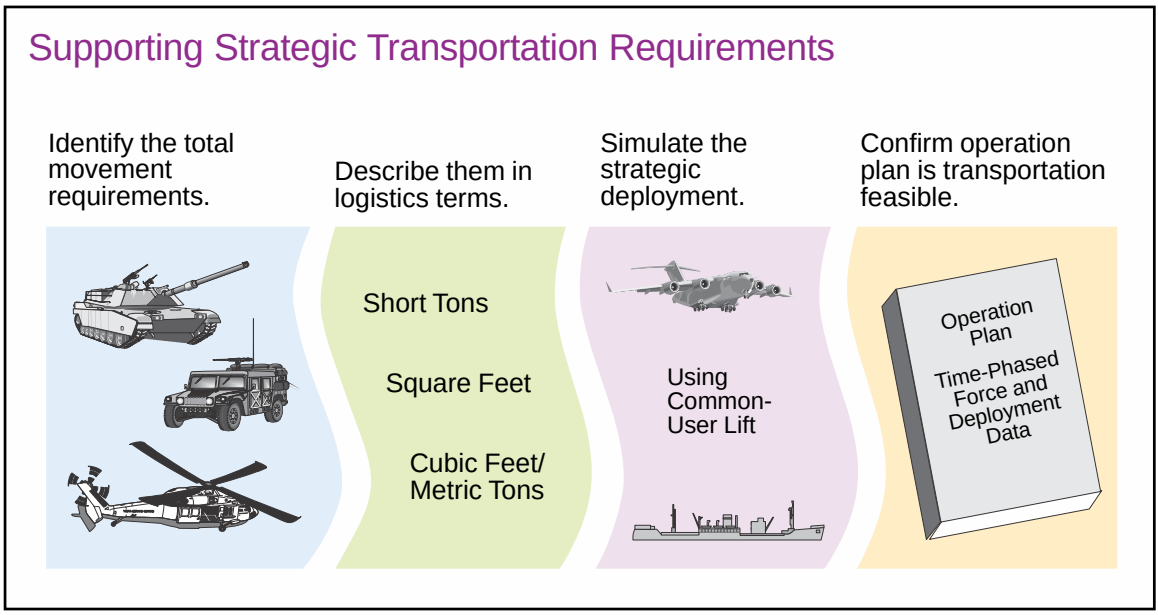


Figure VI-4. Supporting Strategic Transportation Requirements

c. Simulate the deployment using available forces.

d. Confirm that the plan is transportation feasible.

21. Sealift Assessments

a. Assessment of a sealift operation is an iterative process that helps the JFC determine changes within the operational environment, as well as the results of tactical, operational, and strategic actions, in the context of overall mission objectives. During the planning process, operation assessments inform the commander's decisions to employ limited sealift.

b. **Movement Planning.** Execution of the movement plan may take weeks, days, or even hours, depending on the diplomatic situation and scenario. During this period, USTRANSCOM, along with MSC and SDDC, identify the sealift required for execution of the OPORD and tentatively schedule the sealift to move the earliest deploying units. In general, USTRANSCOM and its component commands plan for transportation to support the OPORD when executed, develop feasible transportation schedules, establish initial and follow-on requirements for sealift capability, resolve transportation shortfalls, adjudicate transportation allocation conflicts with the JTB, and publish transportation coordinating instructions.

c. **Sealift Application.** In a crisis, strategic sealift is employed in three roles: surge, sustainment, and pre-positioning. Pre-positioning ships reduce closure times of combat and support forces needed in the early stages of a crisis given they are pre-loaded with combat equipment. These ships may return to the common-user shipping pool but only after coordination and approval from the owning Service, CCDR, and SecDef. Surge shipping should be capable of handling outsized and heavy items of equipment. These

include large numbers of wheeled and tracked vehicles and helicopters, for which RO/RO ships are most suitable. Containerships should not be overlooked, as they may have the capability to transport light combat, combat support, and combat service support equipment. Resupply and sustainment shipping moves the equipment, parts, and supplies necessary to sustain the force. It transports mainly containerized cargo and bulk POL products.

d. **Service Requirements.** The methods by which forces are introduced into an OA vary from Service to Service. Sealift assets are assigned based on the supported CCDR's force closure and sustainment cargo requirements. Strategic sealift of accompanying supplies for Army and/or Air Force units is normally point-to-point unless otherwise specified by the CCDR based on point of need distribution, available port facilities, or other considerations. However, this is not always true for Marine Corps forces. The expeditionary Marine forces, as an integral component of a larger naval force, can influence events within the world's littorals using the sea as maneuver space and as a secure operating base. Seabasing enables forces to move directly from ship to inland objectives. It also permits both Army and Marine forces to commence sustainable operations to enable the flow of follow-on forces into theater. During OEF, Marine forces operated over 400 miles inland while being supported from the sea. Whenever expeditionary units of a significant-sized MAGTF are employed, AFOE sealift provides for long-term operations; short-term or voyage charters are not sufficient.

e. **Resource Capability.** When arranging the duration of supporting sealift ships, it is very important to match sealift capabilities with Service orientation. For example, the USN's expeditionary sea base (ESB) ships, all MSC's RO/RO ships, and some MARAD RRF ships are self-sustaining offshore, meaning they can discharge to lighterage offshore. These ships are capable of supporting for amphibious operations. Furthermore, because they are government-owned, their assured availability makes it feasible to plan and train with them in preparation for a contingency. The MSC surge LMSR ships and the MARAD RRF FSSs are vessels of choice for immediate assignment for the surge role.

f. **Mobility and Transportation Planning.** CJCSI 3110.03, *Logistics Supplement (LOGSUP) for the 2015 Joint Strategic Capabilities Plan (JSCP)*, provides planning guidance to CCDRs regarding strategic sealift. Specific questions regarding asset availability and responsibilities for planning certain facets of sealift (Marine Corps AFOE, for example) can be answered by consulting CJCSI 3110.03 and the *Global Force Management Implementation Guidance.*

22. Sealift Ship Planning

a. CJCSI 3110.03, *Logistics Supplement (LOGSUP) for the 2015 Joint Strategic Capabilities Plan (JSCP)*, presents information and guidance on sealift. Shipping is divided into two broad groups: common-user and withhold. Common-user shipping is available for joint support of all Services' movement requirements. Withhold shipping is reserved for specific purposes and not generally available to transport joint movement requirements. Planning for ships designated as MPF is also covered in appendix 5 (Mobility and Transportation).

b. **Basic Cargo Planning Terms.** Before proceeding with sealift planning, the joint planner should understand several basic terms of cargo handling and stowage: measures of ship capacity, broken stowage, stowage factor or cargo density, and units of cargo measurement.

(1) **Measures of Ship Capacity.** The cargo carrying ability of a vessel may be expressed in one or more units of measure (see Figure VI-5).

(2) **Broken Stowage.** Broken stowage is cargo space left unoccupied after the ship is considered fully loaded. This occurs because cargo sizes and shapes do not conform to those of the ship's cargo compartments and because of the space required for cargo bracing and tie-down to prevent shifting and damage during the voyage. It is expressed as a percentage of the total volume available for cargo stowage (bale cubic). For RO/RO ships, the broken stowage is normally estimated to be 25-35 percent, indicating that the cargo actually occupies 65-75 percent of the total available load space, even though individual cargo spaces/holds are full. The amount of broken stowage is specific to each

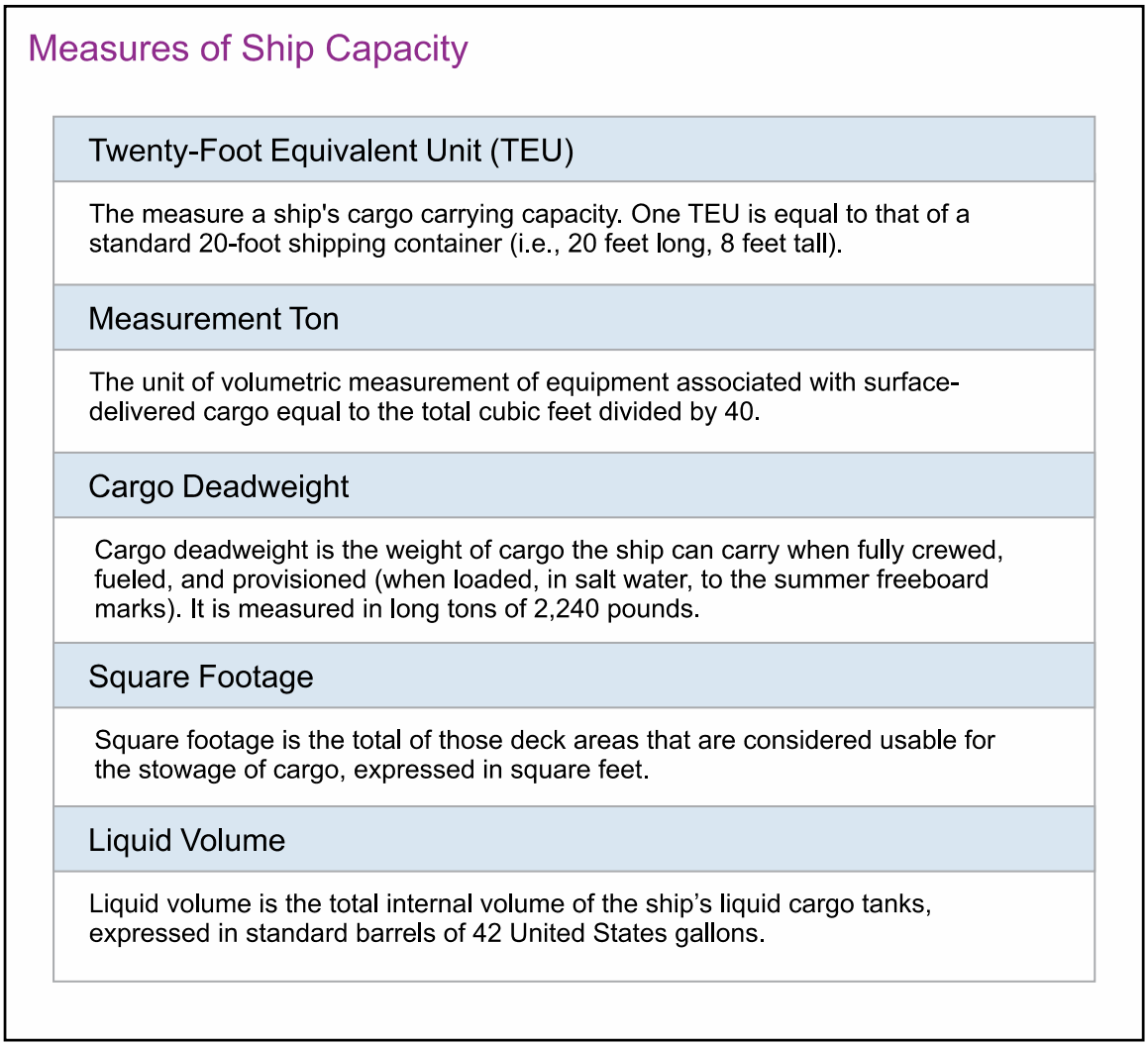


Figure VI-5. Measures of Ship Capacity

ship type, the cargo characteristics, the load plan, and the available load time. For example, historically, loading of vessels for deployment results in an average of 35 percent broken stowage, while PREPO vessels can achieve a broken stowage of 25 percent or less.

(3) **Stowage Factor.** Stowage factor is the number of cubic feet occupied by one long ton (LT) (2,240 lbs.) of any given cargo, without allowance for broken stowage. The stowage factor, in combination with the estimated percentage of broken stowage, can be used to estimate either the space required for loading a given cargo or the amount of cargo that can be loaded aboard a given ship. It can also be used to maximize the cargo space (bale cubic capacity) and weight capacity (cargo deadweight) of available shipping. General cargo ships are typically designed to be full when loaded with cargoes having an average stowage factor of 40 cubic feet per LT (or one measurement ton [MTON] per LT). Cargoes with relatively high stowage factors (i.e., low densities) will fill the ship by volume before its weight capacity is reached. Conversely, cargoes with relatively low stowage factors (high densities) will bring the ship down to its deepest allowable draft before it is full.

(4) **Units of Cargo Measurement.** In determining sealift transportation requirements, the appropriate units of measurement will vary with cargo type and stowage factor (see Figure VI-6). For vehicles and other nonstackable cargo, area square feet is the relevant measurement. For stackable cargoes, stowage factors will determine whether weight (LT) or volume (MTON) is the more appropriate measurement.

(5) **Sealift Planning Factors.** For planning purposes, it is appropriate to use notional cargo capacities. The planning factor for RO/RO ships is an area of up to 190,000 square feet (ship sizes vary widely) and there are two planning factors used for containerships. US-flag containerships without cranes average 4200 twenty-foot-equivalent units (TEUs), while US-flag containerships with cranes average only 1900 TEUs. Besides area, weight is also a consideration when planning. For example, an armored brigade may reach the weight capacity of a RO/RO ship before using all of the area available. USTRANSCOM may also choose to charter a commercial RO/RO vessel instead of activating a MARAD RRF RO/RO vessel to support the mission because the capacity of commercial RO/RO vessels varies widely. Where commercial transportation and facilities are in use, SDDC uses a maximum planning cargo weight of 30,000 lbs. for a 20-foot container, which allows the use of Army palletized load system trucks. However, based on real-world deployment experience, container weights are often closer to 20,000 lbs.

(6) Hazmat stowage is restricted by location and/or proximity to other hazmat. Stowage and compatibility restrictions may reduce the number of containers that can be carried. The stowage of hazmat must be approved by a certified hazmat specialist. The hazmat specialist or SDDC can also advise on the use of special permits that allow some specific hazmat requirements to be waived for operational requirements.

c. **Threats to Sealift Operations**

Cargo Planning Factors

Area:
Vehicles and nonvehicular cargo that cannot be stacked.
For example:

- Tanks
- Trucks
- Generators

Weight:
Nonvehicular, stackable cargo with a stowage factor less than 40.
For example:

- Dumb bombs
- Artillery ammunition

Volume:
Nonvehicular, stackable cargo with a stowage factor greater than or equal to 40. For example:

- Food
- Spare parts

Figure VI-6. Cargo Planning Factors

(1) MSC ships have virtually no self-protection capability, particularly against CBRN hazards. The presence of CBRN contamination may preclude transit by ships. The employment of waterborne improvised explosive devices also poses a significant risk to ships and port activities. Unprotected ships are faced with the risk of loss of ship, cargo, and personnel while operating in any area where a military, terrorist, or piracy threat exists. Therefore, military forces are assigned either to eliminate the threat so ships can transit unopposed at any time, or to provide direct protection, to include ship augmentation, during transits of uncertain or hostile areas. As directed by their CCDRs, Navy component commanders are tasked to implement plans to provide embarked security teams (ESTs), as available, for MSC government-owned vessels and surface and air escort for the protection of all MSC shipping as available. While merchant ships are under escort of military forces, TACON is delegated by the MSC area commander to the appropriate Navy component commander, who may then retain or further delegate TACON over the merchant shipping (refer to paragraph 21.h., "NCAGS"). However, throughout the escort mission, OPCON of the ships normally remains with either the numbered fleet commander or MSC ships supporting USTRANSCOM strategic sealift missions. Protection of ships may be loosely divided into two distinct areas: en route and port security.

(2) **En Route Protection of Shipping.** The traditional, and still very effective, means of directly protecting shipping transit is escort by USN ships and USCG cutters. However, protection of shipping does not consist simply of those actions required to assemble and protect groups of merchant ships. Actions that reduce threats to sealift shipping may eliminate the need for naval escort and be a more efficient use of resources.

These actions may involve other use of air, land, or maritime forces, as appropriate. Internal protection of ships while en route is an MSC responsibility. Consequently, MSC provides threat awareness, ensures vessels/owners are contractually obligated to accept ESTs, when available, conducts crew vetting and provides small arms training. Whatever the means, the objective remains the safe, uninterrupted passage of ships and the delivery of the cargoes to their destinations.

(3) **Port Security**

(a) Threats to ships in seaports are different from those found en route. While threats en route include conventional air, surface, and subsurface port threats are generally from unconventional forces or terrorist organizations. As the lead federal agency for maritime security, the USCG is responsible for waterside security of military cargo loading operations at strategic seaports in the United States. Additionally, the supported CCMD is responsible for port security at SPODs outside of the US territories. USN coastal riverine forces and USCG port security units conduct port security and harbor defense as required.

(b) Port security functions involve the safeguarding of vessels and waterfront facilities (including key assets) within the port from internal and external subversive acts, accidents, thefts, or other incidents. There may be circumstances where dispersion of vessels will be required to minimize the risk of damage from attack. This is done by reberthing vessels in the periphery of the port area or in the vicinity of the port for protection. Principal port security activities include:

1. Monitor port operations.

2. Conduct harbor patrols to detect suspicious activity and determine if the level of security measures taken by vessel and facility owners and operators is sufficient to meet the threat level.

3. Survey waterfront facilities to ascertain capabilities that would be useful in emergency response.

4. Enforce security zones (moving and fixed) to safeguard vessels and port areas.

5. Develop measures to be taken to prevent acts of maritime terrorism.

6. Maintain maritime counterterrorism plans, exercising appropriate safety and security plans, and responding to maritime emergencies involving terrorism.

(4) **Defense of MSC Ships and Army Vessels**

(a) MSC ships are civilian-manned and have legal restrictions with regards to force protection and the use of force. IAW their civilian status, civilian mariners may not be protected by status-of-forces agreements and are not governed by military rules of engagement. The small crew size of MSC ships and the legal status of civilian mariners

generally preclude tasking crewmembers with full-time security duties. They can, however, perform any force protection duties, armed or unarmed, while remaining on the ship.

(b) MSC ships are unarmed, with the exception of a modest complement of small arms. The civilian mariners (whether government or contractor employees) are not members of the Armed Forces. Accordingly, MSC civilian and contract mariners use force IAW the standing rules for use of force for MSC personnel, not the standing rules of engagement applicable to the military. In some cases, this will directly or indirectly provide protection for the ship and/or cargo. In all cases, force protection activities would be limited to actions within the lifelines of the ship. However, in self-defense, they may engage persons or contacts beyond the lifelines of the ship. For example, civilian mariners cannot serve as a pier sentry or picket boat operator but have the inherent right and obligation to exercise unit self-defense in response to a hostile act or demonstrated hostile intent. Accordingly, operational commanders must be prepared to augment MSC ships when, in their judgment, an armed security force is required. To this end, the JFC has an array of enabling capabilities to provide protection to MSC ships under Operation VIGILANT MARINER (OVM), which commenced in June 2004 to meet the SecDef requirement that the Navy act as the DOD executive agent for force protection of military sealift assets. Available capabilities under the umbrella of OVM include the analysis and dissemination of collected intelligence; C2; HNS; maritime aircraft patrols; dark-ship transits; operational risk management; and the utilization of more heavily armed ESTs at selected chokepoints, transits, and ports. ESTs provide security augmentation to MSC assets to detect, deter, and defend against waterborne and land-based terrorist attacks. ESTs are assigned to and employed by Navy Expeditionary Combat Command under Commander, US Fleet Forces Command. Commercial chartered vessels may also use contract security teams. Tools to accomplish the mission include small arms, crew-served weapons, body armor, night-vision devices, and secure radios and telephones.

(c) USA vessels are manned with soldiers who are trained and equipped with crew-served and individual weapons for ship defense against small-scale threats within the vessel's immediate exclusion zone; however, they lack organic capability to detect and defend against most aircraft or naval threats. They may require augmented protection via surface or air escort for transit of military, terrorist, or piracy threat areas. Army watercraft, particularly landing craft, have incorporated fundamental force protection measures in the form of integrated and remotely operated weapons systems, increased communications, common operational picture, and joint interoperability capabilities. The Army's maneuver support vessel will be equipped with a remotely operated weapons system, scalable escalation of force, integrated armor, and enhanced sensory capability. Army vessels will, however, operate forward in concert with protection available under the joint force.

(5) **Sealift OPSEC.** Sealift has several significant OPSEC aspects. The first, and possibly most obvious problem, is the presence of a large number of fully loaded merchant ships at anchor in a major port. Such a gathering over several days is an obvious indication that a convoy or major operation is being planned and is almost impossible to keep secure. Somewhat more subtle, but still obvious, is the gathering of large numbers of sealift ships at a forward base, particularly those ships which can be identified with an

AFOE. A large concentration of merchant ships can be regarded as a target in and of itself; however, the presence of certain types of merchant ships can indicate a major military operation even when the military force has scrupulously observed OPSEC measures. Although not an exhaustive list of OPSEC measures for sealift, the following should be considered as guidelines:

(a) Avoid massing of ships if possible and if unavoidable, minimize the assembly time involved and limit the numbers of ships in any one location.

(b) Be aware of the inferences that can be drawn from the presence of certain combinations of cargoes and specific ship types.

(c) Use deceptive routing and other techniques where possible, avoiding patterns in vessel operations, and routing ships away from the normal sea lanes to avoid detection by neutral or other ships.

(d) Establish and practice an active OPSEC program by planning and exercising OPSEC procedures.

d. **Transition from Peace to Conflict to Stability Activities.** The transition from peacetime transportation in permissive operational environments to a military deployment in contested areas during conflict represents the spectrum of sealift forces operations. Management of this transition will have a significant effect on the success of deployment and sustainment missions assigned to sealift. The transition period involves high risk due to misperceptions about the speed with which the DTS in general, and sealift in particular, can transition from a relatively small peacetime force into a major military force. While transitioning from conflict to stabilization support is not subject to the same time and capacity constraints as the transition from peace to conflict, it still requires careful planning to ensure that gains made during the conflict are not lost.

(1) **Sealift Force Structure.** The first and most obvious change in sealift capability during this transition is that the number of ships under USTRANSCOM control can rapidly and substantially increase. Depending on the source and method of acquisition, ships may be delayed for significant time periods before being considered as active. For planning purposes, the notional time periods shown in Figure VI-7 will be required to obtain sealift from each source or method of acquisition. These sealift availability times represent the period between the first request for that type of sealift and the arrival of ships on berth and ready for loading. These include the time required for activation of ships in ROS, or the time necessary to make the ship available for MSC use, then to transit to the desired SPOE. In the expansion of the sealift force, several factors may further complicate the rapid accumulation of sufficient ships, particularly the acquisition of ships from the MARAD RRF and NDRF. These are:

(a) Frequency of reserve ship test activations and exercises.

(b) Maintenance effort expended on reserve ships.

(c) Shipyard capacity to activate large numbers of ships.

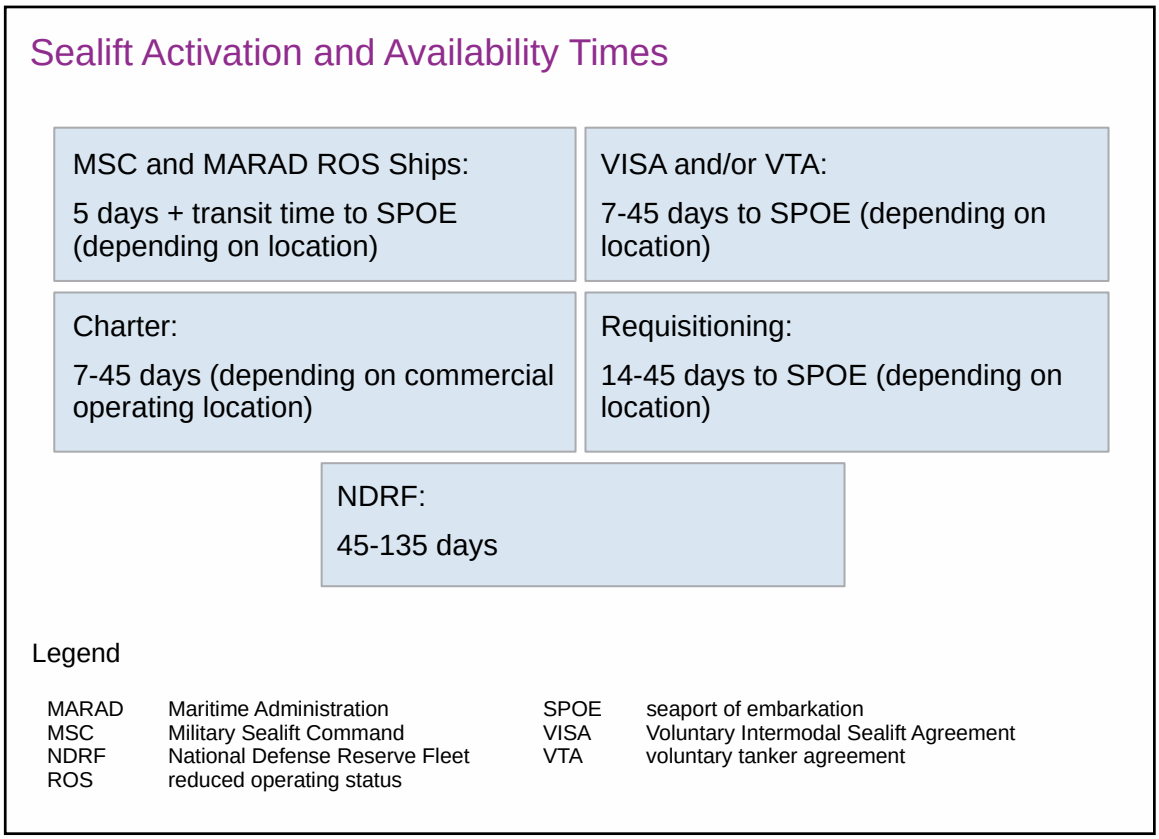


Figure VI-7. Sealift Activation and Availability Times

(d) Availability of trained crews, spare parts, and logistic support.

(e) Availability of militarily useful ships on the world charter market.

(f) Restrictions on the activities of foreign-flag ships by their respective national governments or by the USG.

(2) **Stability Actions.** The transition from conflict to stability actions can be critical to the overall success. Sealift support requirements for this phase of an operation should be considered carefully and early in the planning process. Initially, the military's predominant presence and its ability to C2 forces and logistics under extreme conditions may give it the de facto lead in stability actions normally governed by other agencies that lack such capacities. Some of the same sealift support concerns that affect the transition from peace to conflict also affect the transition to stability actions. However, as the focus changes from projecting combat power and force sustainment ashore to providing relief to civilians and preparing for transition to legitimate civil or international authority, the materiel requirements for the operation markedly change. Additionally, consider preparations for the expeditious transition from primarily military and contracted sealift support to sustainable commercial sealift support, especially since redeployment of forces may compete for available sealift capacity during this phase of operations.

For additional guidance concerning stability activities, refer to JP 3-07, Stability.

e. **NCAGS**

(1) **Mission.** The NCAGS organization's mission is to support Navy component/operational commanders in managing risk by providing situational awareness and near real time clarity of the merchant ship picture to help ensure the safe passage of merchant ships and the safety of naval vessels or the nation in a crisis or contingency. NCAGS provides the operational interface between the Navy and commercial shipping.

(a) NCAGS facilitates cooperation between the military and civil maritime industry to minimize the economic impact to commercial shipping operating in the vicinity of naval vessels conducting military operations, ensure the safe passage of commercial shipping, ensure the safety of naval vessels, and minimize confusion.

(b) In periods of crisis, conflict, national emergency, or war, naval authorities may direct the movement of merchant ships (including routing and diversion) so they may be better protected from hostilities and not interfere with possible active naval, joint, or combined military operations. The NCAGS organization is the principal US resource to ensure the efficient management and safe passage of merchant ships that are not performing strategic sealift functions.

For more information regarding NCAGS, see NTTP 3-07.12, Naval Cooperation and Guidance for Shipping; *Office of the Chief of Naval Operations Instruction 3450.18,* US Naval Cooperation and Guidance for Shipping; *and ATP-2 (B), Volume II,* Naval Cooperation and Guidance for Shipping Manual.

(2) **Organization.** The NCAGS is a trained, USN Reserve capability (under US Fleet Forces Command) that functions to sustain the interface between the JFMCC and merchant shipping. When utilized, the NCAGS functional element should be an integral part of the operational commander's organization. The NCAGS commander makes recommendations to the JFC on the extent and type of cooperation that may be extended. The NCAGS organization consists of an NCAGS liaison cell, maritime operations center (MOC)/maritime domain awareness (MDA) augment teams, maritime security center augment teams (MSCATs), and shipping coordination teams (SCTs).

(a) NCAGS LNOs are the senior military subject matter experts who advise military commanders on all matters relating to the civil maritime industry.

(b) An NCAGS MOC/MDA augment team brings NCAGS expertise to the MOC in support of the MDA cell, works directly for the NCAGS LNO or assistant LNO, and maintains constant communications with the NCAGS MSCAT and SCTs in theater.

(c) The MSCAT's mission is to enhance JTF MDA by providing track, loading, personnel, and point of contact information on merchant vessels, in addition to general merchant community information that will affect the operations and to provide a reach-back capability to forward-deployed elements.

(d) The SCT is the foundation of the NCAGS organization which is located either ashore or afloat. SCTs comprise watch officers, maritime analysts, and plotters that

are regionally focused to support the CCDR or subordinate commander through its JFMCC in improving MDA as it relates to merchant shipping (other than strategic sealift). SCTs maintain and refine commercial shipping information within the common operational picture with a primary focus on maritime homeland defense but also provide AOR-specific information to forward fleet commanders.

(3) **Implementing NCAGS.** The decision to implement NCAGS measures has a direct impact on commercial shipping and requires SecDef approval. Thus, MARAD should be consulted when considering implementing NCAGS measures because of the potential economic impact (e.g., delivery times, insurance rates). Foreign-flag commercial shipping may participate in protocols and measures set forth by the NCAGS organization on a voluntary basis, under the request of the vessel's owner or the flag state. The Chief of Naval Operations, as the NCAGS organization program sponsor, with the support of US Fleet Forces Command, maintains liaison with MARAD and other civilian authorities to coordinate the exchange of information concerning implementation of NCAGS measures.

APPENDIX A
SHIP TYPES

1. Strategic Sealift

a. **LMSR Ships.** An LMSR ship is similar to any other RO/RO ship because it is optimized to carry military unit equipment, with wheeled and tracked vehicles as all or most of its cargo. An LMSR ship differs from most other organic RO/RO ships in that it is faster, larger, and has cranes and hatches to support lift-on/lift-off as well as RO/RO operations. By design, an LMSR ship is capable of sustaining a transit speed of at least 24 knots. LMSR ships have two to three times the stowage capacity of the average RO/RO ship. The gross cargo space for the LMSR ships range between approximately 300,000 square feet for the conversion ships and approximately 380,000 square feet for the new construction ships. Usable cargo-carrying capacity is between 225,000 and 285,000 square feet, respectively, with 25 percent broken stowage applied. The LMSR ship type was built or converted specifically for military use. There are currently no commercial equivalents.

b. **FSS.** The FSSs are former containerships, purchased by the Navy and converted to a RO/RO configuration with on-board cranes and self-contained ramps that enable the ships to off-load onto lighterage while anchored at sea or in ports where shore facilities for unloading equipment are unavailable. The vessels are especially suited to transport heavy or bulky unit equipment such as tanks, large-wheeled vehicles, and helicopters. The FSSs are the fastest cargo ships in the world. They are capable of a sustained speed in excess of 27 knots. The FSSs are part of the MARAD RRF and berthed at CONUS East, West, and Gulf Coast ports in a 5-day ROS, each maintained by a crew of 10. When the FSSs are at FOS, they operate with a crew of 42.

c. **Auxiliary Crane Ships (T-ACSs).** Crane ships are converted cargo ships with two or three twin-boom revolving heavy-lift cranes. These cranes are able to off-load containerships and provide a heavy-lift capability in locations where port facilities are nonexistent, inadequate, or damaged. T-ACSs are capable of handling lifts up to 110 LTs; containers of all sizes, which includes ammunition; and wheeled and tracked vehicles. In addition to this unique off-load capability, each crane ship is able to carry between 200 and 700 containers, and/or flatracks (depending on configuration), and its main deck is also outfitted to carry lighterage and causeways. This capability makes T-ACSs extremely useful in supporting in-stream off-load and JLOTS operations. Crane ships are part of the MARAD RRF and are berthed on the East and West Coasts.

d. **APF.** Afloat pre-positioned ships are chartered commercial and government-owned ships, forward-deployed with equipment and supplies, required early in a crisis. APF ships are government-owned vessels and vessels under long-term charter. Some of these ships feature capabilities such as aviation facilities, lighterage, and floating hoseline systems. The APF consists of MSC ships (e.g., LMSR ships, container, combination container/RO/RO ships, dry cargo/ammo) that comprise the MPF, Army pre-positioned stocks-3 (APS-3), and support to the USAF.

(1) **MPF Ships**

(a) The MPF is a strategic deployment option that combines the substantial PREPO loaded aboard the ships of two MPSRONs with a MAGTF to establish a formidable combined arms force capable of sustained combat operations. Under COCOM of Commander, USINDOPACOM, one is OPCON to MPSRON 2 (positioned in the Indian Ocean) and the other to MPSRON 3 (positioned in the Western Pacific). The NSE and MAGTF personnel, selected equipment, and combat aircraft are flown into the objective area where the MPF operations occur. The MPF comprises specifically constructed or modified RO/RO ships, including LMSR ships, and expeditionary transfer dock (T-ESD) ships. Each squadron carries the majority of equipment and up to 30 days of supplies for a Marine expeditionary brigade. Should a force smaller than a full Marine expeditionary brigade be required, designated ships can be employed to enable the stand-up of crisis response force packages.

(b) Each ship (except LMSRs and T-ESDs) carries unit equipment, supplies, POL, and potable water. Additionally, each ship is outfitted with NSE equipment consisting of the camp support and lighterage needed to discharge cargo through unimproved ports or over a beach. The NSE and lighterage embarked on MPSRONs constitute the Navy's LOTS capability and is often the nucleus around which JLOTS operations are formed. Pre-positioned cargo may be discharged pierside or in-stream by NSE personnel composed of naval beach group and Navy expeditionary logistics support group (cargo-handling battalion) personnel, as well as USMC personnel airlifted to the objective area.

(c) **Aviation Logistics Support Ships (T-AVBs).** T-AVBs in the MARAD RRF provide dedicated sealift for critical movement of the Marine Corps aviation sustainment forces of the MAGTF ACE, upon activation. These ships contain mobile aviation maintenance facilities, which enable them to conduct intermediate aviation maintenance afloat. The T-AVBs are operationally controlled by MSC and maintained in ROS-5 by MARAD. Aviation sustainment personnel deploy and work in standard 8-foot by 8-foot by 20-foot International Organization for Standardization containers called mobile facilities (MFs). The MFs provide the necessary work space for personnel, support equipment, technical publications, special tools, and spare parts. The T-AVB can be deployed in three modes: operational, transport, and combination. In the operational mode, approximately 300 MFs and 325 USMC personnel can be embarked to provide sea-based support for the MAGTF ACE. In the transport mode, approximately 684 MFs and minimum USMC personnel can be embarked to provide maximum land-based support for the MAGTF ACE when off-loaded ashore. In the combination mode, a tailored mix of MFs and USMC personnel can be loaded aboard the T-AVB for a mix of sea-based and land-based support for the MAGTF ACE.

(2) **APS-3 Ships.** The APS-3 consists of government-owned and commercially chartered ships (LMSR and container), and located in the Indian Ocean and the Western Pacific, on which pre-positioned military combat equipment, munitions, and/or supplies are stored to meet rapid deployment requirements of the USA. These ships include an infantry brigade combat team, plus a SUST BDE (which may also include a theater opening/port opening package) with initial sustainment, munitions, and medical supplies for up to 30 days support to an operation when joined with land-based Army pre-positioned

stocks sets. All ships are capable of limited self-discharge in the objective area but are typically intended to be off-loaded at a fixed SPOD. Commander, USINDOPACOM, exercises COCOM of APS-3 and the respective MPSRON commanders exercise OPCON.

(3) **MSC and USAF PREPO.** MSC currently operates two pre-positioned ammunition container ships for the USAF, and COMSC has OPCON of one OPDS ship which can distribute fuel from eight miles off shore. Depending on geographic location, the OPDS is under the control of one of the respective MPSRONs. Of the two pre-positioned ammunition carriers, one is under OPCON of MPSRON 2 in the Indian Ocean and one under OPCON of MPSRON 3 in the Western Pacific.

2. Ship Categories

Sealift ships fall into three broad categories: dry cargo ships or freighters, liquid cargo carriers or tankers, and passenger ships. During joint operations, dry cargo ships transport the equipment and supplies and tankers carry the refined POL required to conduct and sustain the operation. Passenger ships provide troop carrying, noncombatant, or sealift medical evacuation capability in support of the joint operation.

a. **Dry Cargo Ships.** Generally, a dry cargo ship is considered to be militarily useful if it has the ability to carry unit equipment, ammunition, or sustaining supplies without significant modification. The major types of dry cargo ships are illustrated in Figure A-1. The most current listing of ships is available on the MSC homepage at https://www.msc.navy.mil/inventory/.

(1) **Breakbulk.** The term breakbulk ships refers to ships characterized by large cargo hatches and fitted with boom-and-winch (commonly referred to as yard-and-stay) gear or deck cranes. They are primarily used at ports, which, either because of low cargo volumes or local economic factors, lack the modern facilities and inland rail/highway connections required to support efficient containership operations. In competition with containerships, breakbulk ships are no longer commercially viable. Fewer of these ships are being built each year, and none have been built for US-flag owners in recent years. The military advantages of general cargo or breakbulk ships include flexibility in the load composition afforded by open decks and multiple cargo holds and the ability to discharge cargo without the use of developed port facilities. Their military disadvantages include time-consuming cargo operations, the need for dunnage to block and brace pallets, and the requirement for large numbers of trained personnel to load and unload.

(2) **RO/RO Ships.** An RO/RO ship is specifically designed to carry vehicle cargo (i.e., wheeled and tracked vehicles) as all or most of its cargo. Vehicles are driven or towed on and off the ship by means of either the ship's own ramps or shore-based ramps. Because it is designed to accommodate cargo that cannot be stacked but that varies in height, below-deck space and volume utilization is generally less efficient than on a containership. RO/RO ships are thus commercially viable only in certain specialized trades. However, the RO/RO is the preferred ship type for deployment of military unit equipment. The military advantages of RO/RO ships include the capability for rapid

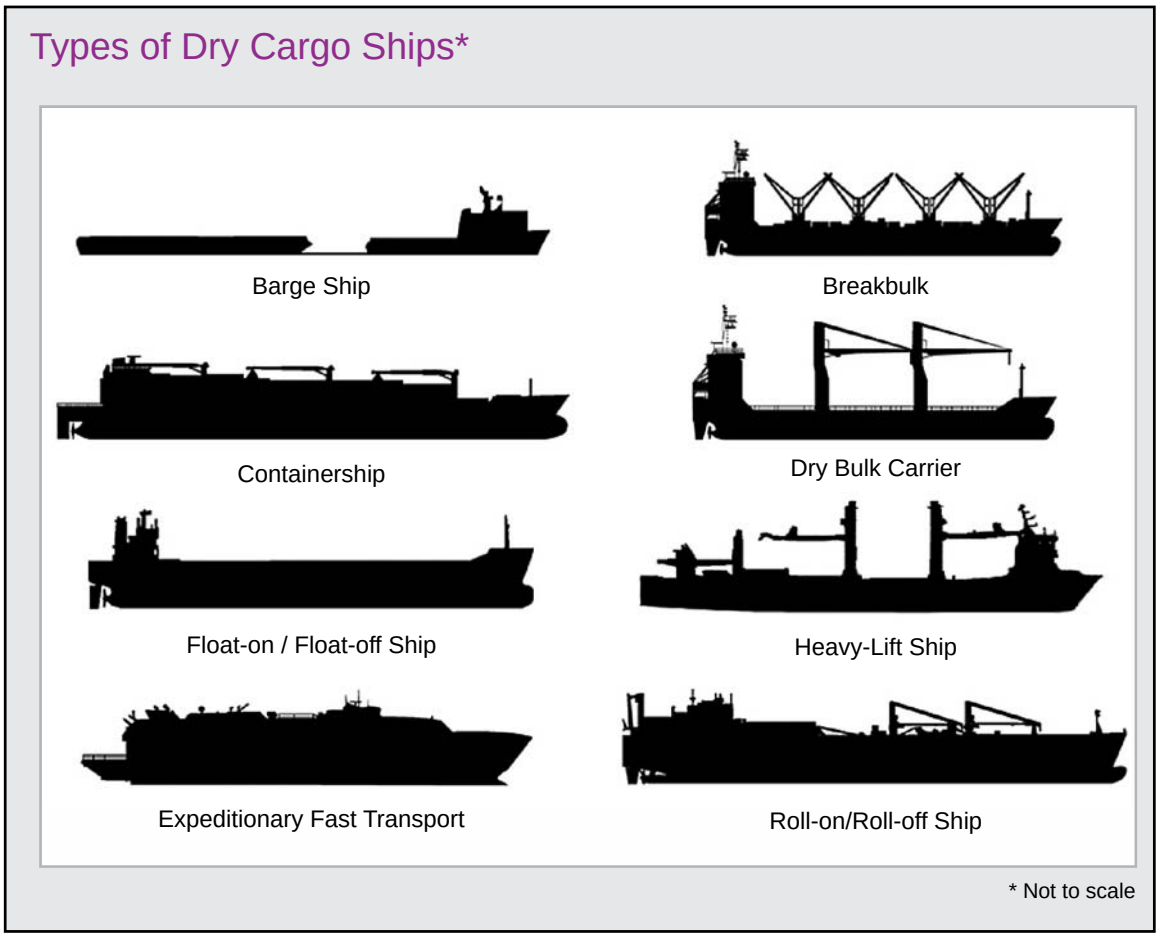


Figure A-1. Types of Dry Cargo Ships

loading and discharge of military vehicles and non-self-deployable aircraft and open deck areas well-suited to the carriage of outsized military cargo. Their military disadvantages include their relative unsuitability for carriage of sustaining supplies and ammunition (in comparison with general cargo and containerships). One type of RO/RO ship is the pure car and truck carrier, which is designed to transport automobiles and light trucks across the ocean. It is primarily used by the automobile/vehicle manufacturing industry, and its decks and ramps are designed to facilitate ease of loading and unloading light vehicles. However, the deck strength and the height between decks are often insufficient to support military vehicles. Overall, the availability of militarily useful commercial RO/RO ships is decreasing.

(3) **High-Speed Transports/Expeditionary Fast Transport.** These are high-speed vessels designed to rapidly deliver vehicles, combat equipment, supplies, and personnel to contingency sites or within theater. They have limited cargo-carrying capability, limited range at speed, and limited cargo transfer capability in heavy sea states. These vessels are best suited for intratheater transportation and are not considered intertheater assets, although they are capable of limited intertheater self-delivery.

(4) **Containerships.** Containerships are specifically designed to carry all of their cargo in standard ocean-shipping containers, which are loaded into vertical cells below deck and stacked and lashed on deck. Most rely on shore-based cranes for cargo loading and discharge. Some containerships are self-sustaining and can self-load/off-load. Standard ocean-shipping containers are weatherproof, made of steel or similar material, constructed to withstand the high forces and elements to which they may be subjected in heavy seas, and usually designed and sized to permit their efficient interchange for connecting with intermodal systems for inland rail or highway movement.

(a) Shipping containers are available in a variety of configurations that include end opening, side opening, half heights, open top, flatrack, refrigerated, liquid bulk (tank), and modular (quadcon/tricon). Except in highly specialized trades, cargo containers generally conform to US and international standards. The size standards for outer dimensions of shipping containers are 20 feet or 40 feet in length; 8 feet in width; and 8 feet or 8 feet, 6 inches in height. Forty-foot containers are the commercial standard but 20-foot containers are particularly useful in transporting high-density cargo such as ammunition. Most containerships can carry containers of mixed heights without significant difficulty. Depending on cargo density, a standard 20-foot container can carry up to 15 to 20 short tons or 29 MTONs of cargo. Containership capacity is normally expressed in TEUs , which is the number of containers 20 feet by 8 feet by 8 feet, 6 inches it can carry or, similarly, in 40-foot-equivalent units.

(b) The military advantages of containerships include their large cargo capacity, excellent suitability for carriage of sustaining supplies and ammunition, and rapid and efficient cargo operations. Movements by containers provide a greater degree of cargo security (e.g., pilferage and damage), reduce cargo-handling costs, and result in more efficient deliveries. Their military disadvantages include near total dependence on specialized shoreside equipment for loading/discharge and general unsuitability for carriage of large vehicles.

(5) **Ocean-Going Barge Ships.** Barge ships are designed to carry specially designed barges (lighters) or a combination of such barges and containers. Thus, they are necessarily large ships with a large heavy-lift capability. Their design was intended to combine the flexibility and self-sustained cargo-handling capability of the general cargo ship with the rapid port turnaround time of the RO/RO ship and containership. In general, these ships are becoming less common as an ever-increasing share of the cargo trade passes to containerships. Ocean-going barges are specifically designed to carry a variety of cargo types over the open seas. These barges are either towed by a large ocean-going tug with a hawser or towing cable or have an interlocking connection for a push-tug (articulated/integrated tug/barge). Some have open holds and can carry containers, rolling stock, or bulk cargo such as grains or ores. Other barge types have a solid deck with the internal compartments designated for the carriage of liquid cargoes and petroleum products or covered holds or deckhouses for cargo protection. In most cases, ocean-going barges do not have the speed and capacity of ships. However, they are versatile and capable of deploying into shallow draft ports and up rivers and estuaries that larger ships are unable to navigate.

(6) **Float-On/Float-Off (FLO/FLO) Ships.** These specialized vessels, or semisubmersible ships, provide the capability to load, transport, and off-load outsized military cargo independent of port equipment traditionally used for handling large or extremely heavy cargo, such as tug boats, barges, landing craft, floating cranes, and single-anchor leg mooring (SALM) systems. Lifts range from approximately 50 to as much as 70,000 tons. These ships are designed to take on ballast water in floodable tanks that partially submerge the vessel. Cargo is then floated over the submerged portion of the vessel, which then deballasts and surfaces under the cargo. After the vessel is fully afloat, the cargo is secured for transport.

(a) The T-ESD is an MSC ship that was developed primarily to provide a surface interface between other MPSRON ships and connectors. The ship enables two primary capabilities: transfer of equipment at-sea and delivery of equipment ashore via landing craft, air cushion (LCAC) and Army watercraft such as logistics support vessel, landing craft utility, and maneuver support vessel.

(b) The T-ESD is a converted tanker design with the addition of FLO/FLO technology. The tanker hull form, with a wide beam of 165 feet, provides a stable base for conducting mooring and surface connector interface operations. The FLO/FLO capability leverages the converted product carrier tanks into saltwater ballast tanks, varying the ship's depth, pitch, and list. Combined with dynamic positioning control (integrated bow thruster, propellers, and rudder), the design permits holding advantageous headings for multiple types of sea-based operations. The ship, with its open reconfigurable mission deck, consists of LMSR ship mooring fenders, a vehicle transfer ramp, a raised vehicle deck, a vehicle staging area, LCAC services catwalk, and three LCAC lanes (barriers, lighting, power, wash down, and fueling services). In addition, various size fenders to support mooring operations with the joint high-speed vessel/high-speed transport and surface connectors and a USCG-certified emergency aviation operating spot are included on the T-ESD.

(7) **ESB.** The ESB ships are highly flexible platforms used across a broad range of military operations. Acting as a mobile sea base, they are part of the critical access infrastructure that supports the deployment of forces and supplies to provide prepositioned equipment and sustainment with flexible distribution. The *Lewis B. Puller* (ESB 3), along with follow-on ships *Hershel "Woody" Williams* (ESB 4) and *Miguel Keith* (ESB 5), are optimized to support a variety of maritime-based missions, including special operations, airborne mine countermeasures, and helicopter and tiltrotor operations. The ESBs include a four-spot flight deck, mission deck, and hangar and are designed around four core capabilities: aviation facilities, berthing, equipment staging support, and C2.

(8) **Heavy-Lift Ships.** Heavy-lift ships are designed to carry exceptionally heavy loads such as boats, barges, cranes, trucks, passenger ferries, or other heavy cargoes. Cargo can be stowed aboard the ships by a lift-on/lift-off method using shoreside cranes or the ship's own cranes or float-in, float-out where the ship partially submerges during loading and unloading. These ships are useful for large, heavy, oversized, and bulky military equipment and cargo.

(9) **Dry Bulk Carriers.** Dry bulk carriers are designed to carry grain or similar cargoes in bulk (i.e., material that can be dumped, sucked, pumped, or blown). Loading and discharge are normally performed at specialized terminals using cargo-handling systems that are designed for specific commodities. Gravity is often used for loading; the various discharge methods include the use of pneumatic systems, conveyors, and excavation-type machinery. Most dry bulk carriers are not considered to be militarily useful. However, some are fitted with deck cranes so that, in some cases, their characteristics are similar to those of a general cargo ship without distinct decks below the main deck (tween decks).

b. **Liquid Cargo Carriers.** MSC operates ships providing worldwide point-to-point movement of DOD bulk petroleum products. Liquid cargo ships, or tankers, are specifically designed to transport liquid cargoes in bulk. The major types of liquid cargo ships are listed in Figure A-2. Although tankers differ greatly in size, their cargo-handling equipment is similar. Specific features of the cargo-handling equipment differ, however, based on the intended cargo. These differences may limit the capability of the ship to carry cargo other than that for which it was designed. Tanker capacities are stated in terms of cargo deadweight tonnage (DWT) or barrels (bbls). DWT is measured in LTs of 2,240 lbs. and 1 bbl equals 42 US gallons. The parameters that define a militarily useful tanker are the capability of carrying POL, a capacity within the range of 2,000 to 100,000 DWT, and a sustained speed in excess of 12 knots. Tankers are classed by size and type of cargo. The major types of liquid cargo carriers are handy size tankers, articulated tug barges (ATBs), medium-size tankers, and large crude carriers. In general, smaller tankers carry “clean” cargoes (refined products, such as gasoline, diesel fuel, or jet fuel) and are sometimes referred to as “product tankers.” Large tankers generally carry “dirty” (unrefined oil or crude oil) cargoes and are often referred to as “crude carriers.”

(1) **Handy size tankers** (6,000 to 35,000 cargo DWT or approximately 48,000 to 280,000 bbls) are the most militarily useful. These generally carry clean or refined products, although some may carry unrefined oil, chemicals, and, occasionally, bulk grain. The term handy size tanker equivalent, refers to a tanker of 200,000 bbls or approximately 25,000 DWT. The military advantages of handy size tankers include their ability to enter most of the world’s tanker ports, the relatively short time required for tank cleaning when required, and their overall flexibility with regard to the different cargoes they can carry.

(2) **ATBs** (13,000 to 46,000 cargo DWT or approximately 100,000 to 350,000 bbls) consist of a tank vessel (barge) with a tug positioned in an articulated (hinged) notch in the stern of the barge enabling the tug to propel and maneuver the barge. ATBs are slower than tanker vessels (generally 11.5-12 knots) and limited to weather up to Beaufort 5 (6-10 foot waves). ATBs are intended for shorter ranges and coastal trade due to smaller bunker tank capacities. They are generally not classed to support intertheater missions. Additionally, not all ATBs are equipped to tank wash adding difficulty when changing cargoes from one voyage to the next. Their main military utility is to support domestic DOD POL movement in wartime in the absence of medium-sized long-term charters tasked to support OPLAN requirements.

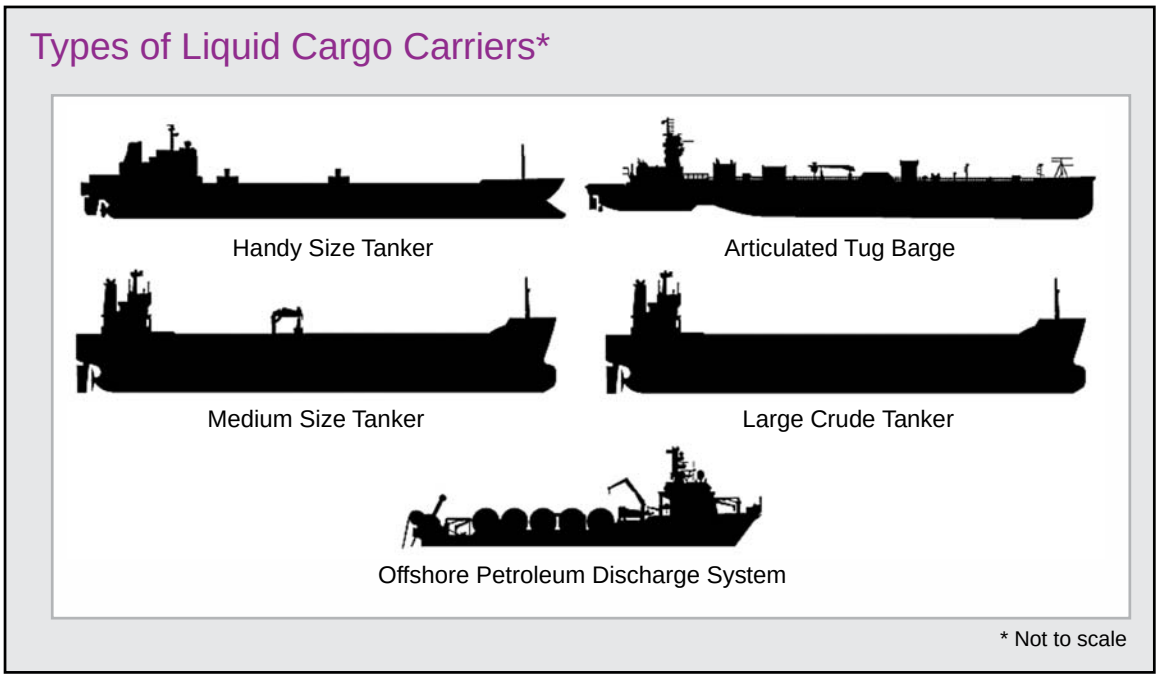


Figure A-2. Types of Liquid Cargo Carriers

(3) **Medium-size tankers** range in capacity from 35,000 to 100,000 DWT (or approximately 280,000 to 800,000 bbls). As a general rule, those under 60,000 DWT can carry clean cargoes while those over 80,000 DWT will, almost exclusively, carry crude oil or other dirty cargoes. Their military disadvantage is that it is extremely difficult and time-consuming (months) to clean the tanks and piping of tankers that have been transporting crude oil or other dirty cargoes, so they can be used to transport refined POL products.

(4) **Large crude carriers** are the largest tanker class and are solely dedicated to the transportation of crude oil. Very large crude carriers range in capacity from 100,000 DWT and up. None of these ships is considered militarily useful.

(5) **OPDS** provides a semipermanent, all-weather facility for bulk transfer of refined bulk petroleum (e.g., jet propulsion fuel, type 5, and jet propulsion fuel, type 8) directly from an offshore tanker to a beach termination unit located immediately inland from the high-water mark. POL then is either transported inland or stored in the beach support area. There are two types of OPDS:

(a) **OPDS Employing Steamship (SS) *Petersburg*.** The SS *Petersburg* OPDS is a system based on a converted tanker. Major components are the OPDS tanker (SS *Petersburg*) with booster pumps and spread mooring winches, a recoverable SALM to accommodate four follow-on tankers up to 70,000 DWT, ship-to-SALM hose lines, up to four miles of six-inch (internal) diameter conduit for pumping to the beach, and two beach termination units to interface with the shoreside systems. This OPDS can support a two-line system for multiproduct discharge, but ship standoff distance is reduced from four to two miles. Amphibious construction battalions install the OPDS with underwater construction team assistance.

(b) **OPDS Employing United States Naval Ship *VADM K.R. Wheeler*.** Her OPDS does not incorporate afloat storage of fuel but utilizes tankers of opportunity. The system is capable of providing 1.7 million gallons per day of jet propulsion fuel, type 5, or jet propulsion fuel, type 8, from up to eight miles offshore in significantly higher sea states than the OPDS employed on the SS *Petersburg*. The OPDS employed by the Wheeler includes the 165-foot tender vessel itself; two embarked lighters, amphibious resupply, and cargo, which help deploy the OPDS conduit; and a beach terminal unit that receives fuel and transfers it to the holding tanks or bladders ashore. Once the conduit is deployed, the *K.R. Wheeler* uses her dynamic positioning system to hold herself in place.

For additional guidance on OPDS, refer to JP 4-01.6, Joint Logistics Over-the-Shore.

3. School/Passenger Ships

Although government-owned, national defense reserve troop ships are specifically designed to transport troops for combat missions, the mission has changed significantly. Troops are generally airlifted to safe landing areas near the combat zone. Troop ships are used for movement of military troops to and from combat and safe areas where troops embark or debark military and commercial aircraft. Passenger ships may also serve for rest and recreation for troops during long periods of combat; these ships are generally foreign-flag, privately owned passenger vessels equipped with amenities not available in traditional troop ships. National defense reserve troop ships are generally converted state maritime academy training vessels that have been enhanced to enable the transport of troops for combat missions. These ships have limited cargo space, and they carry from 480 to 800 troops. When the number of troops increases, the use of folding canvas cots and berthing on deck and in designated holds is required. Commercial, privately owned, and US- and foreign-flag passenger ships are traditional cruise or converted ferry vessels equipped with the necessary comforts for the duration of the transit; vessel capacity varies with the capability for messing and berthing.

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APPENDIX B
AUTOMATED PLANNING AND EXECUTION TOOLS

1. General

Various computer systems, along with their associated databases and peripheral equipment, are used to plan and execute airlift and sealift operations. Use of these systems is highly encouraged to facilitate the flow of critical information between operational components.

2. Mobility Planning and Tracking Tools

a. **Analysis of Mobility Platform-Port Analysis Tool** is a DOD- and USTRANSCOM-sponsored modeling and simulation application used to analyze the end-to-end transportation of equipment, passengers, and supplies through the DTS. The Port Analysis Tools include the Seaport Simulation Tool, the Seaport Throughput Tool, and the Seaport Rapid Analysis Tool. The Seaport Simulation Tool provides a constructive, stochastic, discrete-event simulation of seaport transportation resources and processes. The Seaport Throughput Tool is an analysis and planning tool that determines a seaport's maximum throughput and a quick-look analysis of factors restricting throughput. The Seaport Rapid Analysis Tool is a TPFDD refinement tool that provides a quick-look analysis of seaport transportation enablers' capacity to meet the TPFDD reception and onward movement of cargo and passengers.

b. **Cargo Movement Operations System** is a joint system that integrates computer hardware, software, and communications to effectively plan, document, and manage outbound and inbound cargo and passengers and to plan, schedule, and monitor the execution of transportation activities in support of deployment and reception of forces. It also provides joint forces with an end-to-end distribution capability and real-time ITV during all passenger and cargo movements.

c. **Computerized Movement Planning and Status System (COMPASS)** is an Army C2 support system that uses evolving computer technology with multiple system interfaces that facilitate collection and maintenance of unit movement data (UMD) to support planning, strategic mobility analysis, movement execution, and C2 for mobilization and deployment purposes. COMPASS satisfies CCMD, Army, and Joint Staff UMD information requirements for planning, strategic mobility analysis, and mobilization and deployment movement execution. The COMPASS-processed UMD is utilized within JOPES. The current COMPASS uses direct interfaces with the Global Command and Control System-Army, including its Mobilization Planning module and its Mobilization, Operations, Deployment, and Employment System module—Army Status of Operational Readiness and Training System—as its primary source of UMD to satisfy command information needs for deployment.

d. **Consolidated Air Mobility Planning System** provides air mobility mission planners with an integrated view for airlift and AR requirements management, planning, and scheduling of air mobility forces across the competition continuum. It also provides

advanced user capabilities for operational planning and allocation management for AR missions, SAAMs, and CCDR airlift requirements.

e. **Global Air Transportation Execution System (GATES)** is a single automated system serving worldwide management of both aerial port and surface port operations for DOD transportation. Serving peacetime and contingency operations, GATES support includes automated processing and tracking cargo and passenger information, reporting of ITV data to IGC, and AMC's financial billing process. GATES also aids DOD's capability to bill for cargo and passenger movement. GATES surface port functions include the capability formerly provided by the SDDC Worldwide Port System.

f. **GCCS-J** is DOD's computerized system of record for strategic C2 functions. GCCS-J enables the joint force to plan, execute, and manage military operations. The system helps JFCs synchronize the actions of air, land, maritime, space, and SOF. GCCS-J provides CCDRs a complete picture of the operational environment and the ability to order, respond, and coordinate communications system information. The inherent worldwide dispersal of airlift and sealift mandates that C2 systems be fully interoperable with the GCCS-J family of systems. GCCS-J provides the means to disseminate and share the information necessary to effectively plan, deploy, sustain, redeploy, and employ airlift and sealift forces. The sealift communications system, in its simplest form, enables the sealift operational commander to monitor the situation; conduct assessments; develop estimates, plans, and schedules; issue orders and directives; and report status to higher authority.

g. **Global Decision Support System (GDSS).** As the primary C2 system for airlift and AR missions, GDSS provides aircraft schedules, arrival and/or departure, and aircraft status data to support ITV of aircraft and aircrews.

h. **ICODES** is an automated information system designed to support cargo management, ship load planning, and stowage at common-user ocean terminals. It also supports CCDR requirements for oversight and management of ocean terminals. The responsibility for this function is shared within the Army between SDDC and US Army Forces Command and is performed by the USN at select locations. The ICODES ship load planning function includes the development and implementation of commercial and government vessel notional plans, stow plans, hazardous cargo reports, and final vessel load plans of military and commercial cargoes. It requires strict accountability of cargo. The information developed through these processes at ocean terminals directly supports ITV of the cargo. This contributes to the DOD objective of total AV from origin to destination and provides information required by supported and supporting CCDRs to accomplish their missions.

i. **IGC** is a cooperative effort between DLA and USTRANSCOM that establishes common integrated data services for the CCMDs, Services, DOD, and other USG departments and agencies to manage supply, distribution, and logistics information with a global perspective. IGC provides integration of information from a variety of DTS automated information systems to provide consolidated ITV and C2 data support. IGC extends backward compatibility to customer systems, feeds shipment status to Service and

DOD agency systems, and provides joint force movement tracking and closure. IGC integrates automated data processing and information systems, electronic commerce, and electronic data interchange to track the identity, status, and location of DOD unit and non-unit cargo, passengers, patients, forces, and military and commercial air mobility, sealift, and surface assets from origin to destination.

j. **Joint Flow and Analysis System for Transportation (JFAST).** JFAST is used to analyze and assess transportation feasibility of the CCDR's TPFDD requirements, perform COA analysis, and project delivery profiles of troops and equipment by air, land, and sea. It is a multimodal transportation analysis model designed for and fielded with USTRANSCOM and the JPEC. JFAST enables planners to download specific movement requirements from JOPES and identify specific problem areas from origin to APOEs or SPOEs and ultimately in meeting latest arrival dates at the APODs or SPODs. JFAST employs the Notional Requirements Generator, which draws from a standardized database and creates notional movement requirement data for transportation analysis in a no-plan crisis situation.

k. **Single Mobility System** is a web-based computer system that provides visibility of air, sea, and land transportation assets and provides aggregated reporting of cargo and passenger movements. MSC planners use the system's vessel planning tools to manage ship schedules, identify emerging events, track cargo from the port of embarkation to the port of debarkation, and manage force protection for MSC-controlled ships.

l. **Transportation Coordinator's Automated Information for Movement System** is an automated information system that supports day-to-day operations for unit movement officers, movement controllers, staffs from battalion/separate company to theater level, mode managers, and installation transportation offices. It interfaces with joint and Service systems that provide ITV and total AV to all Services and is the basic building block of source data. The IGC force-tracking software will translate the raw data into ITV and force tracking information.

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APPENDIX C
REFERENCES

The development of JP 3-36 is based upon the following primary references.

1. General

a. Title 10, USC.

b. Title 50, USC.

c. National Security Decision Directive 280, *National Airlift Policy.*

d. Executive Order 12148, *Federal Emergency Management,* as amended.

e. *Unified Command Plan.*

2. Department of Defense Publications

a. DODD 4500.09, *Transportation and Traffic Management.*

b. DODD 4500.54E, *DOD Foreign Clearance Program (FCP).*

c. DODD 4500.56, *DOD Policy on the Use of Government Aircraft and Air Travel.*

d. DODD 5100.01, *Functions of the Department of Defense and Its Major Components.*

e. DODD 5158.04, *United States Transportation Command (USTRANSCOM).*

f. DODI 3020.41, *Operational Contract Support (OCS).*

g. DODI 4500.43, *Operational Support Airlift (OSA).*

h. DODI 4515.13, *Air Transportation Eligibility.*

i. DODI 4540.07, *Operation of the DOD Engineering for Transportability and Deployability Program.*

3. Chairman of the Joint Chiefs of Staff Publications

a. CJCSI 3110.03E, *Logistics Supplement (LOGSUP) for the 2015 Joint Strategic Capabilities Plan (JSCP).*

b. CJCSI 4120.02D, *List of Priorities – DOD Transportation Movement Priority System.*

c. CJCSM 3122.01A, *Joint Operation Planning and Execution System (JOPES) Volume I (Planning Policies and Procedures).*

d. CJCSM 3122.02E, *Joint Operation Planning and Execution System (JOPES) Volume III (Time-Phased Force and Deployment Data Development and Deployment Execution).*

e. CJCSM 3130.03A, *Planning and Execution Formats and Guidance.*

f. JP 2-0, *Joint Intelligence.*

g. JP 3-02, *Amphibious Operations.*

h. JP 3-10, *Joint Security Operations in Theater.*

i. JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments.*

j. JP 3-16, *Multinational Operations.*

k. JP 3-18, *Joint Forcible Entry Operations.*

l. JP 3-30, *Joint Air Operations.*

m. JP 3-34, *Joint Engineer Operations.*

n. JP 3-35, *Deployment and Redeployment Operations.*

o. JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response.*

p. JP 3-50, *Personnel Recovery.*

q. JP 3-52, *Joint Airspace Control.*

r. JP 4-0, *Joint Logistics.*

s. JP 4-01, *The Defense Transportation System.*

t. JP 4-01.5, *Joint Terminal Operations.*

u. JP 4-01.6, *Joint Logistics Over-the-Shore.*

v. JP 4-02, *Joint Health Services.*

w. JP 4-09, *Distribution Operations.*

x. JP 5-0, *Joint Planning.*

4. Multi-Service Publication

a. MCWP 3-32/NTTP 3-02.3M, *Maritime Prepositioning Force Operations.*

b. NWP 3-62M/MCWP 13-10, *Seabasing.*

5. Service Publications

a. AFTTP 3-3.AOC, *Operational Employment-Air and Space Operations Center.*

b. AFTPP 3-42.5, *Aeromedical Evacuation.*

c. Air Force Doctrine Annex 3-05, *Special Operations.*

d. Air Force Doctrine Annex 3-17, *Air Mobility Operations.*

e. Air Force Doctrine Annex 3-52, *Airspace Control.*

f. Air Force Doctrine Annex 4-02, *Health Services.*

g. AFI 13-1, *AOC series publications.*

h. AFI 13-217, *Drop Zone and Landing Zone Operations.*

i. FM 3-21.38, *Pathfinder Operations.*

j. Army Techniques Publication 4-13, *Army Expeditionary Intermodal Operations.*

k. Army Techniques Publication 4-15, *Army Watercraft Operations.*

l. Army Techniques Publication 4-16, *Movement Control.*

m. Commander, Military Sealift Command Instruction 3121.9A CH-2, *Standard Operating Manual.*

n. NTTP 3-07.12, *Naval Cooperation and Guidance for Shipping (NCAGS).*

6. North Atlantic Treaty Organization Publications

a. ATP-02 (C), Volume I, *Naval Cooperation and Guidance for Shipping (NCAGS) Manual*.

b. ATP-3.3.4.2(B), Air-to-Air Refueling.

7. United States Transportation Command Publications

a. DTR, Part I, *Passenger Movement.*

b. DTR, Part II, *Cargo Movement.*

c. DTR, Part III, *Mobility.*

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APPENDIX D
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

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2. Authorship

a. The lead agent for this publication is the United States Transportation Command. The Joint Staff doctrine sponsor for this publication is the Joint Staff J-4 [Logistics Directorate].

b. The following staff, in conjunction with the joint doctrine development community, made a valuable contribution to the revision of this joint publication: lead agent Mr. Patrick Kennedy, United States Transportation Command; Joint Staff doctrine sponsor CDR Erich Schwarz, Joint Staff J-4; Mr. Glen Palmer, Joint Staff J-7, Joint Doctrine Analysis Branch; and Mr. Larry Seman, Joint Staff J-7, Joint Doctrine Branch.

3. Supersession and Cancellation (if required)

This publication supersedes JP 3-17, *Air Mobility Operations,* 6 February 2019, and JP 4-01.2, *Sealift Support to Joint Operations,* 29 December 2015. These publications will be canceled upon approval of JP 3-36.

4. Change Recommendations

a. To provide recommendations for urgent and/or routine changes to this publication, please complete the Joint Doctrine Feedback Form located at: https://jdeis.js.mil/jdeis/jel/jp_feedback_form.pdf and e-mail it to: js.pentagon.j7.mbx.jedd-support@mail.mil.

b. When a Joint Staff directorate submits a proposal to the CJCS that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Services and other organizations are requested to notify the Joint Staff J-7 when changes to source documents reflected in this publication are initiated.

5. Lessons Learned

The Joint Lessons Learned Program's (JLLP's) primary objective is to enhance joint force readiness and effectiveness by contributing to improvements in doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy. The Joint Lessons Learned Information System (JLLIS) is the DOD system of record for lessons learned and facilitates the collection, tracking, management, sharing, collaborative

resolution, and dissemination of observations, issues, best practices, and lessons learned to improve the development and readiness of the joint force. The JLLP integrates with joint doctrine through the joint doctrine development process by providing insights and lessons learned derived from operations, exercises, war games, and other events. As these inputs are incorporated into joint doctrine, they become institutionalized for future use, a major goal of the JLLP. Insights and lessons learned are routinely sought and incorporated into draft JPs throughout formal staffing of the development process. The JLLIS Website can be found at https://www.jllis.mil (NIPRNET) or http://www.jllis.smil.mil (SIPRNET).

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GLOSSARY

PART I—SHORTENED WORD FORMS (ABBREVIATIONS, ACRONYMS, AND INITIALISMS)

ABO	air base opening
ACE	aviation combat element (USMC)
A/DACG	arrival/departure airfield control group
AE	aeromedical evacuation
AECT	aeromedical evacuation control team
AF/A3M-CVAM	Chief of the United States Air Force Special Air Missions Division
AFI	Air Force instruction
AFOE	assault follow-on echelon
AFRC	Air Force Reserve Command
AFTTP	Air Force tactics, techniques, and procedures
ALOC	air line of communications
AMC	Air Mobility Command
AMC/CC	Commander, Air Mobility Command
AMD	air mobility division
AMLO	air mobility liaison officer
AMOG	air mobility operations group
AMOW	air mobility operations wing
AMS	air mobility squadron
AMX	air mobility express
ANG	Air National Guard
AOC	air operations center
AOR	area of responsibility
APF	afloat pre-positioning force
APOD	aerial port of debarkation
APOE	aerial port of embarkation
APS-3	Army pre-positioned stocks-3
AR	air refueling
ARFOR	Army forces
ASCC	Army Service component command
ATB	articulated tug barge
ATC	air traffic control
ATF	amphibious task force
ATO	air tasking order
ATP	Allied tactical publication
AV	asset visibility
bbl	barrel (42 US gallons)
BCD	battlefield coordination detachment (USA)
BOS	base operating support
C2	command and control

CAF	combat air forces
CBRN	chemical, biological, radiological, and nuclear
CCDR	combatant commander
CCMD	combatant command
CCP	combatant command campaign plan
CDRUSTRANSCOM	Commander, United States Transportation Command
CDS	container delivery system
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CJCSM	Chairman of the Joint Chiefs of Staff manual
COA	course of action
COCOM	combatant command (command authority)
COMAFFOR	commander, Air Force forces
COMPASS	Computerized Movement Planning and Status System
COMSC	Commander, Military Sealift Command
CONUS	continental United States
CR	contingency response
CRAF	Civil Reserve Air Fleet
CRE	contingency response element
CRG	contingency response group
CRT	contingency response team
CRW	contingency response wing
CSE	contingency support element
DACG	departure airfield control group
DDOC	Deployment and Distribution Operations Center (USTRANSCOM)
DEPORD	deployment order
DHS	Department of Homeland Security
DIRMOBFOR	director of mobility forces
DLA	Defense Logistics Agency
DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
DOS	Department of State
DOT	Department of Transportation
DTR	Defense Transportation Regulations
DTS	Defense Transportation System
DWT	deadweight tonnage
DZ	drop zone
ENAO	emergency nuclear airlift operations
ERPSS	En Route Patient Staging System
ESB	expeditionary sea base
EST	embarked security team
EW	electromagnetic warfare

EXORD	execute order
EZ	exchange zone
FAA	Federal Aviation Administration (DOT)
FLO/FLO	float-on/float-off
FM	field manual (USA)
FOB	forward operating base
FOS	full operational status
FSS	fast sealift ship
GAMSS	Global Air Mobility Support System
GATES	Global Air Transportation Execution System
GCCS-J	Global Command and Control System-Joint
GDSS	Global Decision Support System
GPS	Global Positioning System
HN	host nation
HNS	host-nation support
HQ	headquarters
IAW	in accordance with
ICODES	Integrated Computerized Deployment System
IGC	Integrated Data Environment/Global Transportation Network Convergence
ITV	in-transit visibility
J-4	logistics directorate of a joint staff
JA/ATT	joint airborne and air transportability training
JACCE	joint air component coordination element
JAOC	joint air operations center
JCS	Joint Chiefs of Staff
JDDE	joint deployment and distribution enterprise
JDDOC	joint deployment and distribution operations center
JFACC	joint force air component commander
JFAST	Joint Flow and Analysis System for Transportation
JFC	joint force commander
JFMCC	joint force maritime component commander
JIPOE	joint intelligence preparation of the operational environment
JLOTS	joint logistics over-the-shore
JMC	joint movement center
JOA	joint operations area
JOPES	Joint Operation Planning and Execution System
JOSAC	joint operational support airlift center
JP	joint publication
JPADS	joint precision airdrop system

JPEC	joint planning and execution community
JPMRC	joint patient movement requirements center
JRSOI	joint reception, staging, onward movement, and integration
JTB	Joint Transportation Board
JTF	joint task force
JTF-PO	joint task force-port opening
lbs.	pounds
LCAC	landing craft, air cushion
LF	landing force
LMSR	large, medium-speed roll-on/roll-off
LNO	liaison officer
LOTS	logistics over-the-shore
LT	long ton
LZ	landing zone
MAF	mobility air forces
MAGTF	Marine air-ground task force (USMC)
MAJCOM	major command (USAF)
MARAD	Maritime Administration
MARAD RRF	Maritime Administration Ready Reserve Force
MCCE	Movement Coordination Centre Europe
MCRP	Marine Corps reference publication
MCT	movement control team
MCWP	Marine Corps warfighting publication
MDA	maritime domain awareness
MDDOC	Marine air-ground task force deployment and distribution operations center
MEF	Marine expeditionary force
MF	mobile facility
MHE	materials handling equipment
MOC	maritime operations center
MOG	maximum (aircraft) on ground
MOPP	mission-oriented protective posture
MPF	maritime pre-positioning force
MPSRON	maritime pre-positioning ships squadron
MSC	Military Sealift Command
MSCAT	maritime security center augment team
MSP	Maritime Security Program
MTF	medical treatment facility
MTON	measurement ton
NATO	North Atlantic Treaty Organization
NCAGS	naval cooperation and guidance for shipping
NDRF	National Defense Reserve Fleet

NEO	noncombatant evacuation operation
NGDS	Next Generation Delivery Service
NSE	Navy support element
NTTP	Navy tactics, techniques, and procedures
NWP	Navy warfare publication
O&M	operation and maintenance
OA	operational area
OCONUS	outside the continental United States
OEF	Operation ENDURING FREEDOM
OIF	Operation IRAQI FREEDOM
OPCON	operational control
OPDS	offshore petroleum discharge system (USN)
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
OSA	operational support airlift
OVM	Operation VIGILANT MARINER
PM	patient movement
PMI	patient movement item
PMI-ATS	Patient Movement Items-Asset Tracking System
PMR	patient movement requirement
PMRC	patient movement requirements center
PNAF	prime nuclear airlift force
POL	petroleum, oils, and lubricants
PR	personnel recovery
PREPO	pre-positioned force, equipment, or supplies
RAMCC	regional air movement control center
RO/RO	roll-on/roll-off
ROS	reduced operating status
618 AOC (TACC)	618th Air Operations Center (Tanker Airlift Control Center)
SAA	senior airfield authority
SAAM	special assignment airlift mission
SAC	Strategic Airlift Capability
SALM	single-anchor leg mooring
SCT	shipping coordination team
SDDC	Military Surface Deployment and Distribution Command
SecDef	Secretary of Defense
SECNAV	Secretary of the Navy
SECTRANS	Secretary of Transportation
SOF	special operations forces
SPOD	seaport of debarkation

SPOE	seaport of embarkation
SS	steamship
STT	special tactics team
SUST BDE	sustainment brigade
TACON	tactical control
TACP	tactical air control party
T-ACS	auxiliary crane ship
T-AVB	aviation logistics support ship
TDD	time-definite delivery
T-ESD	expeditionary transfer dock
TEU	twenty-foot-equivalent unit
TOC	tactical operations center
TPFDD	time-phased force and deployment data
TPMRC	United States Transportation Command patient movement requirements center
TSC	theater sustainment command (USA)
TWCF	Transportation Working Capital Fund
UCP	Unified Command Plan
UMD	unit movement data
USA	United States Army
USAF	United States Air Force
USC	United States Code
USCG	United States Coast Guard
USEUCOM	United States European Command
USG	United States Government
USINDOPACOM	United States Indo-Pacific Command
USMC	United States Marine Corps
USN	United States Navy
USSF	United States Space Force
USTRANSCOM	United States Transportation Command
VISA	Voluntary Intermodal Sealift Agreement
VTA	voluntary tanker agreement

PART II—TERMS AND DEFINITIONS

aerial port. An airfield that has been designated for the sustained air movement of personnel and materiel, as well as an authorized port for entrance into or departure from the country where located. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

aeromedical evacuation control team. A core team assigned to a component-numbered Air Force air operations center air mobility division that provides operational planning, scheduling, and execution of theater aeromedical evacuation missions and positioning of aeromedical evacuation ground forces. Also called **AECT.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

afloat pre-positioning force. Ships maintained in full operational status to pre-position military equipment and supplies afloat in support of combatant commanders' operation plans. Also called **APF.** (Approved for incorporation into the DOD Dictionary.)

airborne. 1. In relation to personnel, troops especially trained to effect, following transport by air, an assault debarkation, either by parachuting or touchdown. 2. In relation to equipment, pieces of equipment that have been especially designed for use by airborne troops during or after an assault debarkation, as well as some aeronautical equipment used to accomplish a particular mission. 3. When applied to materiel, items that form an integral part of the aircraft. 4. The state of an aircraft, from the instant it becomes entirely sustained by air until it ceases to be so sustained. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

airdrop. The unloading of personnel or materiel from aircraft in flight. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

airland. Movement by air and disembarkment, or unloading, on the ground after the aircraft has landed or while an aircraft is hovering. (Approved for incorporation into the DOD Dictionary.)

airland operation. An operation involving movement by air with a designated destination for further ground deployment of units and personnel and/or further ground distribution of supplies. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)**airlift control team.** A core team within the joint air operations center with intratheater airlift functional expertise to plan, coordinate, manage, and execute intratheater airlift operations in support of the joint force air component commander. Also called **ALCT.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

airlift mission commander. A commander designated in the implementing directive for airlift operations. (Approved for incorporation into the DOD Dictionary.)

airlift requirement. The total number of passengers and/or weight/cubic displacement of cargo required to be carried by air for a specific task. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air mobility. The rapid movement of personnel, materiel, and forces to and from, or within, a theater by air. (Approved for incorporation into the DOD Dictionary.)

Air Mobility Command. The Air Force component command of the United States Transportation Command. Also called **AMC.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air mobility control team. A core team within the joint air operations center that directs or redirects air mobility forces in response to requirements changes, higher priorities, or immediate execution requirements. Also called **AMCT.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air mobility division. Located in the joint air operations center to plan, coordinate, task, and execute the air mobility mission consisting of the air mobility control team, airlift control team, air refueling control team, and aeromedical evacuation control team. Also called **AMD.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air mobility liaison officer. A rated United States Air Force mobility air forces officer selected, trained, and equipped to assess, train, advise, and assist with mobility air forces and ground force integration for air movement and sustainment. Also called **AMLO.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air movement. Air transport of units, personnel, supplies, and equipment, including airdrops and air landings. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air refueling. The refueling of an aircraft in flight by another aircraft. Also called **AR.**(Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

air terminal. A facility on an airfield that functions as an air transportation hub and accommodates the loading and unloading of airlift aircraft and the in-transit processing of traffic. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

allowable cabin load. The maximum payload that can be carried on an individual sortie. Also called **ACL.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

bale cubic capacity. The space available for cargo measured in cubic feet to the inside of the cargo battens, on the frames, and to the underside of the beams. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

chalk number. The number given to a complete aircraft load and to the transporting carrier. (Approved for incorporation into the DOD Dictionary.)

channel airlift. Airlift provided for movement of sustainment cargo, scheduled either regularly or depending upon volume of workload, between designated ports of embarkation and ports of debarkation over validated contingency or distribution routes. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

Civil Reserve Air Fleet. A program in which the Department of Defense contracts for the services of specific aircraft, owned by a United States entity or citizen, during national emergencies and defense-oriented situations when expanded civil augmentation of military airlift activity is required. Also called **CRAF.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

common-user airlift service. The common-user transportation service provided by air mobility forces. (Approved for incorporation into the DOD Dictionary.)

common-user ocean terminal. A military installation, part of a military installation, or a commercial facility operated under contract or arrangement by the Military Surface Deployment and Distribution Command that regularly provides for two or more Services terminal functions of receipt, transit storage or staging, processing, and loading and unloading of passengers or cargo aboard ships. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

common-user sealift. The common-user transportation services provided by the Military Sealift Command. (Approved for incorporation into the DOD Dictionary.)

common-user transportation. Transportation and transportation services available to two or more Department of Defense components and, as authorized, non-Department of Defense organizations, at the same time. (Approved for incorporation into the DOD Dictionary.)

cross-loading. The distribution of leaders, key weapons, personnel, and key equipment among the aircraft, vessels, or vehicles of a formation to aid rapid assembly of units at the drop zone or landing zone or preclude the total loss of command and control or unit effectiveness if an aircraft, vessel, or vehicle is lost. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

departure airfield. An airfield on which troops and/or materiel are enplaned for flight. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

departure point. A navigational check point used by aircraft as a marker for setting course. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

director of mobility forces. The designated agent for all air mobility issues in the area of responsibility or joint operations area exercising coordinating authority between the

air operations center (or appropriate theater command and control node), the 618th Air Operations Center (Tanker Airlift Control Center), and the joint deployment and distribution operations center or joint movement center, to expedite the resolution of air mobility issues. Also called **DIRMOBFOR.** (Approved for incorporation into the DOD Dictionary.)

dispersion. 1. The spreading or separating of troops, materiel, establishments, or activities, which are usually concentrated in limited areas to reduce vulnerability. (JP 5-0) 2. In chemical and biological operations, the dissemination of agents in liquid or aerosol form. (JP 3-41) 3. In airdrop operations, the scatter of personnel and/or cargo on the drop zone. (JP 3-36) 4. In naval control of shipping, the reberthing of a ship in the periphery of the port area or in the vicinity of the port for its own protection to minimize the risk of damage from attack. (Approved for incorporation into the DOD Dictionary.)

drop zone. A specific area upon which airborne troops, equipment, or supplies are airdropped. Also called **DZ.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

dual-role tanker. An aircraft that can carry support personnel, supplies, and equipment for the deploying force while escorting and/or refueling combat aircraft to the area of responsibility. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

Global Air Transportation Execution System. The Air Mobility Command's aerial port operations and management information system designed to support automated cargo and passenger processing, the reporting of in-transit visibility data to the Global Transportation Network, and billing to Air Mobility Command's financial management directorate. Also called **GATES.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

Global Decision Support System. The command and control system employed by mobility air forces that provides schedules, arrival and/or departure information, and status data to support in-transit visibility of mobility airlift and air refueling aircraft and aircrews. Also called **GDSS.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

heavy-lift ship. A ship specially designed and capable of loading and unloading heavy and bulky items and has booms of sufficient capacity to accommodate a single lift of 100 tons. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

intertheater airlift. The common-user airlift linking theaters to the continental United States and to other theaters, as well as the airlift within the continental United States. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

in-transit visibility. The ability to track the identity, status, and location of Department of Defense units, and non-unit cargo (excluding bulk petroleum, oils, and lubricants),

and passengers, patients, and personal property from origin to consignee or destination. Also called **ITV.** (Approved for incorporation into the DOD Dictionary.)

intratheater airlift. Airlift conducted within a theater with forces assigned to a combatant commander or attached to a subordinate joint force commander. (Approved for incorporation into the DOD Dictionary.)

jumpmaster. The assigned airborne-qualified individual who controls paratroops from the time they enter the aircraft until they exit. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the Source JP.)

Maritime Security Program. A program authorized in the Maritime Security Act of 2003 requiring the Secretary of Transportation, in consultation with the Secretary of Defense, to establish a fleet of active, commercially viable, militarily useful, privately owned vessels to meet national defense and other security requirements. Also called **MSP.** (Approved for incorporation into the DOD Dictionary.)

marshalling. 1. The process by which units participating in an amphibious or airborne operation group together or assemble when feasible or move to temporary camps in the vicinity of embarkation points, complete preparations for combat, or prepare for loading. 2. The process of assembling, holding, and organizing supplies and/or equipment, especially vehicles of transportation, for onward movement. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

Military Sealift Command. A major command of the United States Navy reporting to Commander, Fleet Forces Command, and the United States Transportation Command's component command responsible for designated common-user sealift transportation services to deploy, employ, sustain, and redeploy United States forces on a global basis. Also called **MSC.** (Approved for incorporation into the DOD Dictionary.)

mobility. A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

mobility air forces. Air components and Service components that are assigned and/or routinely exercise command authority over air mobility operations. Also called **MAF.** (Approved for incorporation into the DOD Dictionary.)

National Defense Reserve Fleet. 1. Including the Maritime Administration Ready Reserve Force, a fleet composed of ships acquired and maintained by the Maritime Administration for use in mobilization or emergency. 2. Less the Maritime Administration Ready Reserve Force, a fleet composed of the older dry cargo ships, tankers, troop transports, and other assets in the Maritime Administration's custody that are maintained at a relatively low level of readiness. Also called **NDRF.** (Approved for incorporation into the DOD Dictionary.)

national shipping authority. The organization within each Allied government responsible in time of war for the direction of its own merchant shipping. Also called **NSA.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

Navy-unique fleet essential aircraft. Combatant commander-controlled airlift deemed essential in support of naval operations' transportation requirements. Also called **NUFEA.** (Approved for incorporation into the DOD Dictionary.)

node. 1. A location in a mobility system where a movement requirement is originated, processed for onward movement, or terminated. (JP 3-36) 2. In communications and computer systems, the physical location that provides terminating, switching, and gateway access services to support information exchange. (JP 6-0) 3. An element of a system that represents a person, place, or physical thing. (JP 3-0) (Definition #1 approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

operational support airlift. Airlift movements of high-priority passengers and cargo with time, place, or mission-sensitive requirements. Also called **OSA.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

oversized cargo. 1. Large items of specific equipment such as a barge; side loadable warping tug; causeway section, powered; or causeway section, nonpowered that require transport by sea. 2. Air cargo exceeding the usable dimension of a 463L pallet loaded to the design height of 96 inches but equal to or less than 1,000 inches in length, 117 inches in width, and 105 inches in height. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

port of embarkation. The geographic point in a routing scheme from which cargo or personnel depart. Also called **POE.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

reduced operating status. Military Sealift Command ships withdrawn from full operating status because of decreased operational requirements. Also called **ROS.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

sealift enhancement features. Special equipment and modifications that adapt merchant-type dry cargo ships and tankers to specific military missions. Also called **SEFs.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

senior airfield authority. An individual designated by the joint force commander responsible for the control, operation, and maintenance of an airfield, to include the runways, associated taxiways, parking ramps, land, and facilities whose proximity directly affects airfield operations. Also called **SAA.** (Approved for incorporation into the DOD Dictionary.)

staging base. 1. An advanced naval base for the anchoring, fueling, and refitting of transports and cargo ships and for replenishment of mobile service squadrons. (JP 3-36) 2. A landing and takeoff area with minimum servicing, supply, and shelter

provided for the temporary occupancy of military aircraft during the course of movement from one location to another. (JP 3-18) (Approved for incorporation into the DOD Dictionary.)

station time. In air transport operations, the time at which crews, passengers, and cargo are to be on board and ready for the flight. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

stowage factor. The number that expresses the space, in cubic feet, occupied by a long ton of any commodity as prepared for shipment, including all crating or packaging. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

United States Naval Ship. A public vessel of the United States that is in the custody of the Navy and operated by the Military Sealift Command with a civil service crew or operated by a commercial company under contract to the Military Sealift Command with a merchant marine crew. Also called **USNS.** (Approved for incorporation into the DOD Dictionary.)

vehicle cargo. Wheeled or tracked equipment, including weapons, that require certain deck space, head room, and other definite clearance. (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

Voluntary Intermodal Sealift Agreement. An agreement that provides the Department of Defense with assured access to United States flag assets, both vessel capacity and intermodal systems, to meet Department of Defense contingency requirements. Also called **VISA.** (Approved for incorporation into the DOD Dictionary with JP 3-36 as the source JP.)

voluntary tanker agreement. An agreement established by the Maritime Administration to provide for United States commercial tanker owners and operators to voluntarily make their vessels available to satisfy Department of Defense contingency requirements. Also called **VTA.** (Approved for incorporation into the DOD Dictionary.)

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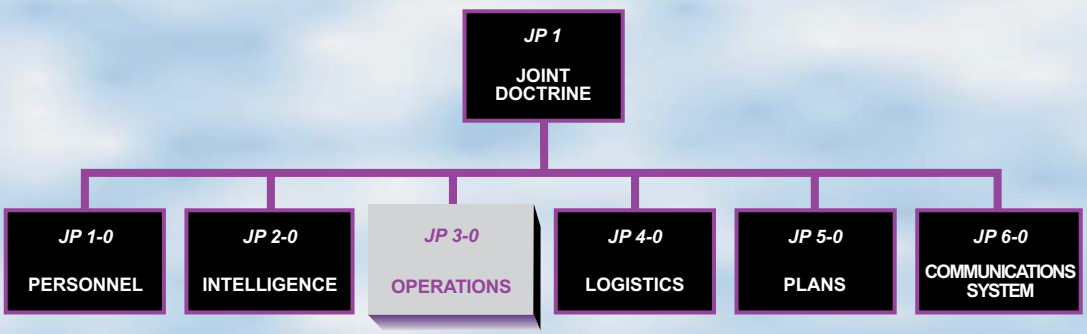
JOINT DOCTRINE PUBLICATIONS HIERARCHY



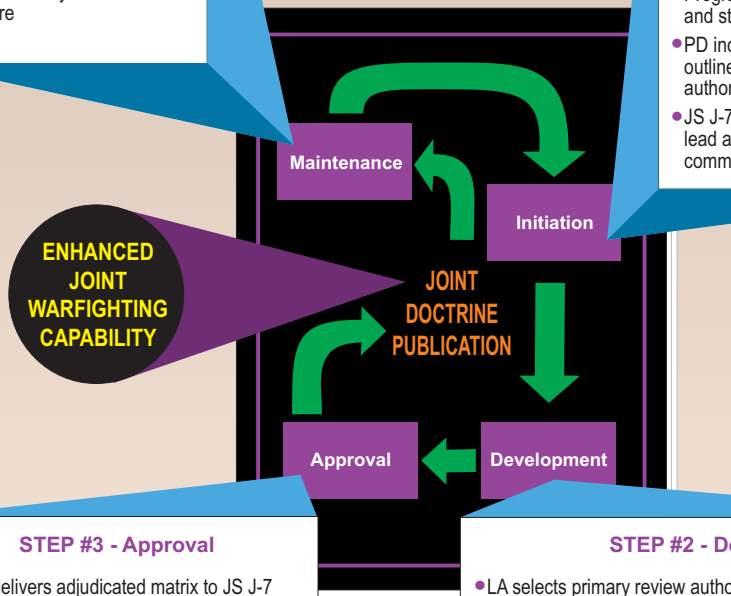
All joint publications are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-36** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

STEP #4 - Maintenance

- JP published and continuously assessed by users
- Formal assessment begins 24-27 months following publication
- Revision begins 3.5 years after publication
- Each JP revision is completed no later than 5 years after signature

STEP #1 - Initiation

- Joint doctrine development community (JDDC) submission to fill extant operational void
- Joint Staff (JS) J-7 conducts front-end analysis
- Joint Doctrine Planning Conference validation
- Program directive (PD) development and staffing/joint working group
- PD includes scope, references, outline, milestones, and draft authorship
- JS J-7 approves and releases PD to lead agent (LA) (Service, combatant command, JS directorate)



STEP #3 - Approval

- JSDS delivers adjudicated matrix to JS J-7
- JS J-7 prepares publication for signature
- JSDS prepares JS staffing package
- JSDS staffs the publication via JSAP for signature

STEP #2 - Development

- LA selects primary review authority (PRA) to develop the first draft (FD)
- PRA develops FD for staffing with JDDC
- FD comment matrix adjudication
- JS J-7 produces the final coordination (FC) draft, staffs to JDDC and JS via Joint Staff Action Processing (JSAP) system
- Joint Staff doctrine sponsor (JSDS) adjudicates FC comment matrix
- FC joint working group


JOINT
CHIEFS OF STAFF